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PREFACE.

It will be noticed that the scientific matter in the present volume appears in advance of the minutes, roster, index, etc. The committee in making this transposition believe that it will meet the approval of the Fellows, since the essays and discussions are clearly the most important part of the transactions.

H. A. COTTELL, *Chairman*,
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DR. J. Q. A. STEWART.

THE PRESIDENT'S ANNUAL ADDRESS.

EDUCATION, TRAINING, AND MEDICAL TREATMENT OF THE FEEBLE-MINDED.

By J. Q. A. Stewart, M. D.
Farmdale, Ky.

Gentlemen of the Kentucky State Medical Society, ladies and gentlemen, I wish to return my sincere thanks for the honor you have conferred upon me, in selecting me at your last meeting in Frankfort to preside over the deliberations of the thirty-ninth annual session of this Society. I am fully conscious of the honor, and have no words with which to express my gratitude, but if I shall acquit myself to your satisfaction I will have had my cup of happiness filled to the brim and overflowing. An address which will interest the general public as well as the profession is one expected of the President of this Society, and, in order to meet that expectation to some extent, I have selected the subject of the education, training, and medical treatment of the feeble-minded.

I am conscious of the fact that this subject is more or less familiar to medical men, and I realize that in this paper I will present nothing new for your consideration. My desire, however, is to refresh your memory and to recall to you the duty you owe to this most unfortunate class of your brethren, and by doing this I hope to arouse through you a more thorough investigation into the causes of idiocy, and its possible prevention.

It is common now to use the word feeble-minded, meaning thereby to include all degrees and types of congenital defect, from the simply backward boy or girl, but little below the normal standard of intelligence, to the profound idiot, a helpless, speechless burden, with every deficiency between these extremes.

The lack may be so slight as to involve only the ability to properly decide questions of social propriety, or conduct, or simply questions of morality, or it may profoundly affect every faculty.

In theory the differences between these various degrees of deficiency are marked and distinct, while in practice the lines of separation are entirely indefinite. I will present a case the more fully to illustrate a low-grade idiot:

A child from one to two years of age attracts the attention of some member of the family, and by its singular actions arouses the fear that there is something wrong with it. The mother is notified of these eccentricities, and the matter is discussed by the family. She does not know what is the matter with her child; she is not willing to admit that it could be mentally deficient. Indeed she is the last one to see it, and she resents with profound indignation the suggestion that her child could by any possibility of means be defective in any way. She has, however, noticed that it does not respond to her affectionate embraces, and gives no heed to her efforts to attract its attention. She notices that it has no wants, or if it has, gives evidence of them only in cries of discordant sound. It can not talk; its muscular movements lack co-ordination; the vacant and expressionless eye, the inattentive ear, the slow development of the physical as well as the mental structure all indicate that this child has come into the world "scarce half made up," and is of very low intelligence or an idiot. After many anxious hours and days of watchful solicitude, the mother at last reluctantly admits to herself that all is not right with her little one. What a shock

the knowledge of this is to all interested in this child. But the poor mother, what of her? In her despair she sends for her doctor. You see the child, perhaps you have noticed it before in your visits to the family, and have been too timid to tell the mother the truth. You are apt to decide hastily that the child is beyond your help. You feel that you can not give to the distressed mother any hope that medicine will avail. She has sent for you, her doctor in whom she has the utmost confidence, and believes with God's help you can restore to her child its lost or undeveloped reason. She has unbosomed herself to you and asks for aid. Are you to abandon her in this most trying hour? Would you not rather watch its development for the next few years? Who but you can advise the proper treatment of the little one, the proper hours for its food, exercise, baths, sleep, etc.? Who knows so well as you that upon its perfect health depends its mental and physical development, and who has the knowledge to direct this treatment so well as the doctor? More depends upon you at this time of the child's life than will ever come to any one afterward into whose care the child may fall.

The treatment must commence from the moment of the child's birth, and it must be continued uninterruptedly until it is old enough to be placed in an institution especially adapted to its training. In order to give you a hurried history of the origin and first efforts to mentally develop the idiot, I quote the following statistical account from a paper read at the National Conference of Charities and Corrections in Chicago, by Dr. Fernald, of Massachusetts. He says:

The first recorded attempt to educate an idiot was made about the year 1800 upon a boy found wild in a forest in the center of France. This boy could not speak any human tongue and was devoid of all understanding and knowledge. The attempt was finally abandoned. In 1818, and for a few years afterward, several idiotic children were received and given instruction in the American Asylum for the Deaf and Dumb, at Hartford, and a fair

degree of improvement in physical condition, habits, and speech was obtained. In the year 1828 Dr. Ferret, physician at the Bicetre at Paris, attempted to teach a few of the more intelligent idiots who were confined in the hospital to read and write, and to train them to habits of order and cleanliness. In 1831 Dr. Fabret attempted the same work at the Salpetrià, and in 1833 Dr. Voisin opened his private school for idiots in Paris. None of these attempts were successful enough to warrant their continuance. In 1833 Dr. Edward Seguin, a pupil of Itard and Esquirol, began the private instruction of idiots at his own expense. After seven years of patient labor and experiment, and the publication of two or three pamphlets describing the work, a committee from the Academy of Sciences at Paris examined critically and thoroughly his methods of training and educating idiot children, and reported to the Academy, giving it the highest commendation, and declaring that, up to the time he commenced his labors in 1837, idiots could not be educated by any means previously known or practiced, but that he had solved the problem. His work thus approved by the highest authority, Dr. Seguin continued his private school in Paris until the Revolution in 1848, when he came to America, where he was instrumental in establishing schools for idiots in several States. In 1846 Dr. Seguin published his classical and comprehensive treatise on Idiocy, which was crowned by the Academy, and has continued to be the standard text-book of all interested in the education of idiots up to the present time. His elaborate teaching and training of idiots consisted in the careful adaptation of the principles of physiology through physiological means and instruments to the development of the dynamic, perceptive, reflective, and spontaneous functions of youth. This physiological education of defective brains as a result of the systematic training of the special senses, the functions and the muscular system was looked upon as a visionary thing, but it has been verified and confirmed by modern experiment and research in physiological psychology. Dr. Seguin's school was visited by scientists and philanthropists from nearly every part of the civilized world, and, his methods bearing the tests of experience, other schools were soon established in other countries based upon his methods. When the results obtained by these great forerunners in the training of idiots became known, and through the earnest efforts of a few philanthropists

in England the work was commenced in that country, a private school was established in Bath in 1846, and later on the finely appointed establishments at Colchester and Earlswood. From the success attending the efforts made by these scientists the necessity for establishing schools in the United States became apparent. Following out the plans heretofore adopted in this country of caring for the insane, the deaf mutes, and the blind, why not the helpless and neglected pauper idiots who had no homes, and as a rule were sent to the jails and poor-houses? A few had been received in schools for the deaf mutes and the blind, and they showed considerable improvement after a period of training. Some especially troublesome and of a low grade were sent to the insane asylums, and it was shown, even in these schools and asylums where no special training was given them, that much improvement followed. It was, however, soon discovered that these institutions were not adapted to the wants of the idiot. It was as necessary to have special and peculiar training for them as it was for the blind and deaf mutes. On the 1st of October, 1848, the first State school for idiots in America was opened. The direction of the school was undertaken by Dr. Howe, Superintendent of the Perkins Institute for the Blind, and was afterward called the Massachusetts School for Idiots and Feeble-minded Youth. Two months after this a private school was opened at Barre, Mass., by Dr. H. B. Wilber.

Twelve years after the opening of Wilber's school he was invited by General John Rodman, who was then a member of the General Assembly of this State, to come to Kentucky with a few of his pupils to show to the members of the legislature, which was then in session, their proficiency as the result of his training after the Seguin methods. This exhibition was so successful, and demonstrated so conclusively the advantage to be derived from the systematic methods of instruction, that General Rodman immediately formulated and presented to the General Assembly a bill to establish the Kentucky institution for the education and training of the feeble-minded children, and in 1860, in August, the first pupil was admitted. In July, 1857, the legislature of the

State of New York established a school for idiots, and the trustees selected Dr. H. B. Wilber, who had for more than three years previously so successfully organized and conducted the private school at Barre, Mass., as the superintendent. In the first annual report of the trustees of this institution, published in 1851, the aims and purposes of the proposed school were summed up as follows:

> We do not propose to create or supply faculties absolutely wanting, nor to bring all grades of idiocy to the same standard of development or discipline, nor to make them all capable of sustaining creditably all the relations of social or moral life, but rather to give to dormant faculties the greatest possible development, to apply these awakened faculties to a useful purpose under the control of an aroused and disciplined will. At the base of all our efforts lies the principle that as a rule none of the faculties are absolutely wanting, but dormant, undeveloped, and imperfect.

This school attracted much attention from educators and others, and was frequently and critically inspected by members of the legislature and other State officials. On the 11th day of April, 1853, the legislature authorized the erection of new buildings. The citizens of Syracuse donated the land, and the corner-stone of the first structure in this country built expressly for the purpose of caring for and training idiots was laid September 8, 1854.

The school at Syracuse continued under the management and direction of Dr. Wilber until his death in 1883. In this school the physiological methods of education have been most thoroughly and scientifically carried on by his successor, Dr. Carson, and a high degree of success attained. Pennsylvania was the third State to take up the work. In 1855 the present site at Elwyn was secured and the foundation was laid for the present magnificent institution village with nearly a thousand inmates. The Ohio institution at Columbus was established April 17, 1857, and under Dr. G. A. Doran, who

has had charge of it since its inauguration, has made most wonderful progress. The State of Ohio has always provided for her feeble-minded children on a more liberal and generous scale than any other State. This institution, with its eleven hundred inmates, its substantial buildings and splendid equipments, its admirably conducted school and industrial departments, is one of the best institutions in the world devoted to the care and training of this special class. The Connecticut school for imbeciles at Lakeville was established in 1858. It was the fifth school organized in the United States, and Dr. H. M. Knight was appointed the first superintendent. The Kentucky school at Frankfort was the sixth public school established in the United States for the education of the feeble-minded. I have thus brought you to the establishment of this school to show that Kentucky was among the first to realize the importance of caring for and educating this class of her neglected children. I can not go further into the history of the organization of schools for idiots. Suffice it to say that the good work did not stop here, for many schools since then have been organized, until now there are nineteen public and ten private institutions in the United States. For many years Kentucky has made an appropriation of from $75 to $100 per annum for the support of any pauper idiot who might apply for it. This seems to be generous and beneficent on the part of the State, and many hundreds of applications have been made for it, until the sum paid out of the treasury now reaches over $100,000 annually; the doors of the treasury being thus opened to the attacks of the dishonest, and the field so inviting to the unscrupulous, that, like the scalp law, idiots are being made out of most any kind of material, and frauds are daily perpetrated upon the State treasury.

The demand has become so heavy that almost every legislature has made an effort to reduce the sum appropriated, but without success. Many counties report to the Auditor from twenty to thirty-five pauper idiots, and they draw annually

from the State between two and four thousand dollars for each county. I have for many years advocated the repeal of the idiot law, not only because of the frauds perpetrated upon the treasury (and there are many), but because I believe the law to be the cause of the most shameful abuse and neglect of the very class of persons it was intended to benefit. These persons are unable to complain and are mostly without friends; and also because I believe and know that there are many among these so-called pauper idiots who could be taught some useful industry if the law was repealed and all worthy pauper idiots were sent to the school at Frankfort. Until sixteen years ago the institution was conducted as a school. It followed closely the plans laid down by Seguin, and met with the success usually attending his methods of instruction. This appeared to be sufficient for all purposes, but it did not seem to me to be the only object to accomplish. There were several large girls and boys who had received all the benefits in the way of school training that could be given to them, and who had remained in this school nearly as long as the law would allow them. They had received the ordinary school education. They knew how to read and write, and were familiar with the common rules of arithmetic. They could sing and go through satisfactorily with the calisthenic exercises, which were all very pretty and attractive, but the question presented itself to me, Would the acquisition of these school exercises alone enable these people to make a living for themselves after they were dismissed from the school? Were they prepared by these accomplishments to battle with the world for bread, and had they been taught any practical thing during their school life which would enable them when turned from the doors of the institution to take up the serious duties of life and hold their own in the struggle they must make with the world? Every feeling of my nature revolted at the suggestion of turning them out into the world, for I knew they were in nowise prepared for the

serious responsibilities they would encounter. Then, in connection with the school department, the idea of attaching some industrial occupation which would to some extent enable them to compete with others was proposed. The subject was discussed at a meeting of the Board of Commissioners, and it was decided to try the experiment. This was such a radical departure from all previous efforts in behalf of this class of persons that many misgivings were indulged in by those who were cognizant of the plans proposed. There were no precedents to follow. It had never been attempted before in any school of this kind, and those engaged in the work in other States were doubtful and gave the scheme no encouragement. They took the position that the State ought to care for its defectives if it need be all their lives without requiring any thing of them. This was admitted by those of us who believed in the final success of the undertaking, and we urged that if nothing else was accomplished the very fact of a boy being permitted to drive a nail or of a girl to make herself an apron would act as an incentive to better work in the school-room. After much discussion it was decided to erect a laundry for the girls and to provide a sewing-room where lessons could be given in these industries, and half of every school-day in the week was devoted to these branches.

The success attending these experiments showed the wisdom of the originators of the idea, and then rapidly followed a shoe shop, carpenter shop, a broom and mattress shop, and other light trades for the instruction of the boys, each of whom was selected according to his capacity for such trade as was best for him. And Kentucky has the honor of being the first to introduce and successfully teach industrial pursuits to idiotic children, and now many pupils of each sex are annually sent away able to make a living for themselves by their trades, and are respectable members of society. But even now with all these improvements in such successful opera-

tion, with the school department showing the progress of the pupils to be equal to that of any other school of this class in this country or the world, the industrial departments managed without expense to the State, we find that every legislature has among its members those who urge its abolishment because of the cost to the State for its maintenance. It would be the truth to say that the incentive urging these men to abolish the public institution is because of the fact that those counties they represent (or misrepresent) would receive the seventy-five dollars for each of the pauper children thus returned to them. These blatant members never visit the institution and know nothing of its work. They are consequently ignorant of the great benefit it bestows on those for whom it was intended. Is it at all remarkable when you consider the amount of money these counties receive as a result of the operations of the idiot law that we find their representatives boldly proclaiming that they came to Frankfort pledged to destroy the public institution that such of the children who are from their counties may be returned? Is it at all remarkable that we find members of the legislature ready and willing to introduce measures to destroy or cripple the usefulness of the institution, that thereby they might reward some henchmen who were useful to them at the polls by appointing them as guardians or committeemen to the children so returned? There are many children in the State now kept from getting an education because of the stipend received from the State for their support as idiots.

Indeed I know of several cases where the idiot boys make the living for the family, and the parents receive the money with the utmost complacency, just as if their boys were pauper idiots. I know of a man who married the sister of a supposed pauper idiot, whom he has foisted upon the State as an idiot that he might receive the sum allowed, and who says he would not take seventy-five dollars for her labor, as she does all the work of the family.

Don't you see that the law amounts, in fact, to a premium on idiocy, and is often taken advantage of by the unscrupulous to foist upon the State any pauper child whose mentality appears to be under the normal standard, so that a committeeman may receive seventy-five dollars and the child barely a subsistence. The very low-grade child is not often sought after. They generally fall to the lot of the poorhouses or are sent to the lunatic asylums. But it is the boy or girl able to work, who by their labor, in addition to the money received by the State, which makes it a good thing for their keepers. Many of these helpless children would be so improved by the training given them at the public institution as to make them able to earn their own support by their labor and take care of themselves, whereas, as the law now is, they are virtually condemned to a lifetime of toil, ignorance, and degradation.

Dr. Kerlin, of Pennsylvania, who was one of the foremost men in our ranks, has spent a lifetime in the great work of the amelioration of the condition of the idiot, was until his death, only a year ago, the Superintendent of the Pennsylvania Institute for Feeble-minded Youths, has said:

There is no field of political economy which can be worked to better advantage for the diminution of crime, pauperism, and insanity than that of idiocy. The early recognition of some of its special and more dangerous forms should be followed by their withdrawal from unwholesome environments and their permanent sequestration before they are pronounced criminals and have by the tuition of the slums acquired a precocity that deceives even experts. Only a small percentage should ever be returned to the community, and then only under conditions that would preclude the probability of their assuming social relations under marriage or becoming sowers of moral or physical diseases. How many of your criminals, your inebriates, your tramps are congenital imbeciles? How many of your insane are really feeble-minded or imbecile persons? Wayward, neglected in their early training, and at last conveniently housed in hos-

pitals after having wrought mischief, entered social relations, reproduced their kind, and antagonized experts and lawyers, puzzled philanthropists, and in every possible manner retaliated on their progenitors for their origin and on the community for their misapprehension. How many of your incorrigible boys, lodged in the houses of refuge to be half educated in letters and wholly unreached in morals, are sent into the community the moral idiots they were at the beginning, only more powerfully armed for mischief and pauperism, breeding other paupers; what is it but imbecility let free to do its mischief.

It is no fault of the feeble-minded boy or girl if their tendency is to lead dissolute lives. We owe to them in their early childhood the fostering care of institution life, and even in adult life they will need the watchful guardianship of persons specially adapted to this work. A feeble-minded girl is exposed as no other girl in the world is exposed. She has not sense enough to protect herself from the perils by which she is surrounded. Often bright and attractive, if at large, she either marries and brings forth in geometrical ratio a new generation of defectives and dependents, or she becomes the irresponsible source of corruption and debauchery in the communities where she lives. There is hardly a poorhouse in this land where evidences of this kind of neglect are not to be seen. The plan to relieve this condition, and which is advocated by the best minds of the nation, is to colonize the idiot and feeble-minded in one institution and under one management. The school department should be the central idea. Around this should be erected buildings for the custodial care of low-grade idiots, epileptics, and the paralytic. A system of discipline should be carried on in each of these departments, so that as improvement is made in any child in either of these sufficient to warrant its transmission to the school department, it may be done. The expense, which has always been the cry of demagogues and record-makers in the legislature, will be no greater than is now expended by

the State, and the pauper idiots will get the benefit of all the money appropriated for them.

After the organization and establishment of the Kentucky institution in 1860, the war of the rebellion came on, and the South since then has been too poor to establish such institutions, and Kentucky is the only State south of the Ohio River thus provided. Many inquiries are constantly being made from these States, and I have no doubt that in the near future every one of them will be provided with schools for the education of idiots. There is one idiot to every eight hundred of the population of any civilized country. In the United States there are eighty thousand of them. Kentucky, in a mistaken way, is endeavoring to take care of nearly fourteen hundred of them at a cost of over one hundred thousand dollars per annum. Most of these you will find in the poor-houses, the jails, the asylums for the insane, or in the keeping of committeemen. Only about one hundred of them are at the public institution, where they all ought to be. The asylum for the insane is no place for them. It costs the State as much to keep them there as it would at the institution expressly provided for them. What good can be accomplished then by abolishing the institution for the feeble-minded? Many of the inmates would have to go to the asylum or to the poor-houses, and there would be nothing gained and irreparable damage done.

For want of time I can not discuss the subject further. I plead for those who can not plead for themselves. I sum up by reiterating the points touched upon in this paper. Let the doctor realize that much depends upon him in the early years of the child's life—that such medicines as needed may be promptly provided under his immediate supervision; that out-door exercise, massage, proper food, proper clothing, proper bathing, and all the minute details necessary for the child's development physically is attended to. Let the State provide more bountifully for the pauper idiots. Let separate

buildings under the care of one central government be supplied to those who may be entitled to them. Let the idiot law be promptly repealed, and have all pauper imbeciles collected under one grand management so that they can be cared for and treated scientifically; the epileptic in one department, that the doctor may have an opportunity to study his particular wants, for he can not be treated anywhere successfully unless he is provided with necessary buildings and necessary appliances. Let the paralytic have another department, as is now done by all other States making any pretension whatever to provide for them. Then, and not till then, will the State and the profession have fully performed their duty to this afflicted class and real benefit accrue to the child.

God help the imbecile! more dark their lot
Than deaf or dumb, the cripple or the blind;
The closed soul vision theirs, the blighted mind,
Babes though full grown, the page of life a blot.

Yet say, shall their affliction be abhorred,
Their need o'erlooked; shall Charity pass by
To leave them to perish with averted eye?
Forbid, the love that burns to serve her Lord.

OBSTACLES TO BE MET IN ELEVATING THE STANDARD OF THE MEDICAL PROFESSION.

By J. N. McCormack, M. D., LL. D.
Bowling Green, Ky.

How to admit to the ranks of the medical profession of this country in the future only those who are fairly competent, intellectually and morally, to meet the responsibilities which such admission imposes is probably one of the most serious questions confronting thoughtful members of the profession. Upon its proper solution depends not only the permanent place which ours is to occupy among the learned professions, but the well-being and lives of the citizens of every rank and condition. From the period of life where Tristram Shandy's biography begins to old age few of our people long escape such contact with the medical man as make health and comfort if not life itself dependent upon his knowledge and skill, and this too of a kind of which, in the very nature of the case, the layman is usually incompetent to judge.

It is by no means a new or a simple question. In older countries, and under more arbitrary forms of government, it has been practically settled by statutory safeguards placed at the portal of the profession, the entrance to student life, rigid inquiry being made into the educational and moral qualifications of each person desiring to begin the study of medicine, and this governmental supervision through professional lines is continued so long as he remains a physician.

That the friends of medical reform may not be discouraged at the slow progress being made in this country, it may be

well to say that the high standard attained in such countries has come, like human liberty itself, only after centuries of unceasing agitation and conflict. It is barely thirty years since the first bill was proposed to regulate the practice of medicine in Kentucky, while the first proposition of this character was made in England in 1422, seventy years before the discovery of America, and this did not receive the sanction of parliament until nearly a hundred years later. This act provides that "No one shall use the mysterie of fysyk unless he hath studied in some university, and is at least a bachelor in that science (the penalty being £10), and every woman who shall practice fysyk shall suffer the same penalty." Legislation kept fully abreast of the progress of the medical profession, as will probably be the case in every country, but it was only in 1858 that the profession of Great Britain secured the enactment of the present comprehensive laws, which, though not so far-reaching as the profession there demands, can not but challenge the admiration of a physician of a free country like ours, where a beautiful diploma from a legally chartered institution may still be obtained, after a ten days' study, for the sum of fifty dollars. Such institutions now exist in at least three States adjoining ours, and until six years ago such a diploma conferred upon the holder a *prima facie* right to practice medicine in Kentucky, and made him the peer before the law of the most learned. The history of England upon this movement is substantially the history of Germany, France, and the other highly civilized continental countries, and must be that of our own country if the rank and file of the profession is to be elevated to a fair standard of excellence. Success will be achieved only by a constant warfare in the profession of intelligence and skill against ignorance and incapacity, between the scientific professional man and him who practices medicine only as a trade.

The first legislation had upon this subject in this country was in New York in 1787, followed by a similar law in Mas-

sachusetts in 1817. These laws were seemingly in advance of public and professional sentiment, as they were repealed in 1844 and 1838 respectively. With the organization of the American Medical Association in 1847, and the great stimulation of professional sentiment throughout the entire country incident thereto, interest in the subject of a higher medical education revived, and a long-continued and most commendable effort was made by its leading spirits, and in the various State societies, to bring about a reform through the medical colleges themselves. The rapid growth of the country and consequent need for physicians about this period caused medical schools, many of them such only in name, to spring up like magic in every center of population, with such diversified interests and aims that any agreement between them which would serve the public or professional interest was found impracticable.

The earnestness of many of the leading educators of the country in this work was shown at a convention of delegates held at Cincinnati, May, 1867. Resolutions were passed recommending changes in the methods of study, and advising a four years' course instead of three. "These propositions," says Dr. H. A. Johnson, a distinguished delegate from Chicago, "no doubt faithfully represented the opinions of those teachers when at a distance from their institutions, but they had altogether a different set of ideas when the question was presented in its financial aspect at home." Nothing came of this meeting. Ten years afterward, at the meeting of the American Medical Association in Chicago, representatives from thirty-one medical colleges, of a hundred and forty-eight then existing in the country, formed the Association of American Medical Colleges, and adopted a constitution, by-laws, and articles of confederation. These articles prescribed that at and after the session of 1879–80 the regular session should not be less than twenty weeks, that the term of study should not be less than three years, and the number of

sessions not less than two. In 1880 the Association increased its requirements to three sessions, and agreed upon preliminary examinations as a condition of admission after the session of 1882–83. This Association also went to pieces when the time approached for the increased requirements to go into operation.

These historical facts have been given somewhat in detail in order to show how barren of results had been the resolutions of societies and the efforts of leading medical teachers in bringing about any substantial reforms. At this time medicine had reached the low-water mark in this country. The desire for illicit gain, which became so marked a feature of mercantile and public life during and after the Civil War had infected our profession, and there soon developed a class of medical adventurers, usually carpet-baggers so far as Kentucky was concerned, I am proud to say, who, by dishonest and ignorant but widely advertised pretenses, not only brought odium on the profession, but became at once a drain upon the purses and a menace to the health of our people. Many of these men had diplomas obtained from fairly respectable schools, upon a basis of four years' practice and attendance more or less upon one course of lectures. Fraudulent schools had sprung up in many sections, and both at home and abroad American medical diplomas became abundant and valueless. Of course the better schools and teachers continued to do excellent work, and were patronized by the class of students who desired to learn scientific medicine, but in many respects these were placed at a great disadvantage. As practically no evidence of qualification was required of physicians in any of the States, the educated physician often found himself at a disadvantage before the community in competition with his pretentious and unscrupulous neighbor whose education, such as it was, had cost him little time or money. The better colleges were placed at a similar disadvantage. If the illiterate and incompetent were refused matriculation or graduation,

the rejected applicant could get a handsomer diploma for less money and in a shorter time from one of the lower grade but still fairly respectable schools, or, failing in this, from one of the fraudulent institutions. Scores of the latter were found in this State when the new law went into operation in October last.

At this juncture, from 1880 to 1890, a new factor in the interest of higher medical education and honest and honorable methods of practice appeared. By a consensus of opinion, developed and directed by the American Medical Association and the various State societies, effective laws were passed in more than thirty States of the Union, and in all of the provinces of Canada. Statutes had existed in many of the States previously, but, as in our own State, they were uniformly weak and inoperative.

In October, 1880, the Illinois State Board of Health, under authority of a statute very similar to the one now in operation in this State, adopted its schedule of minimum requirements, to go into effect after the session of 1882–83. In adopting these requirements the Board simply put in force in Illinois what the best colleges and teachers had long and repeatedly urged as a necessity. Most of these schools gladly and at once fell into line, and, as a failure to conform to the requirements excluded the graduates of a college from that great State, and soon from other States which made similar requirements (in fact blacklisted it before the medical world), the pressure brought to bear on other schools was very great. This Board also inaugurated a systematic and exhaustive investigation into the standing, equipment, and methods of every institution claiming to teach medicine in this country, and the resulting information was widely published.

The effect of this work was immediate and gratifying, as indicated in the announcements of the colleges, and affected every aspect of student life. It is true that in some instances the reform did not extend beyond the printed announcement

that some poorly equipped but honestly managed schools could only comply by slowly advancing methods, but with the large majority the reform was immediate and promises to be lasting.

There have been 236 medical schools of all kinds chartered in the United States and Canada. Of these, 148 existed in 1880, 135 in this country and 13 in Canada. Of these, the number requiring certain educational qualifications before matriculation, in 1880, was 45; in 1886, 114; in 1894, 144. The number requiring attendance upon three or more courses of lectures before graduation at that time was 22; in 1890, 64; in 1894, 140. The average duration of the lecture course at that time was 23.5 weeks; now 111 colleges have a lecture term of six months or more.

Many of the best schools in the South suffered great hardships from these requirements, and in ways not easily understood in other sections. Often interrupted and impoverished by the Civil War, and mainly dependent upon a patronage poor in funds and educational advantages from the same cause, compliance with them was more difficult, though not less desired, than with those of more fortunate sections of the country.

While the time was propitious for this reform, much of its success was due to the personal work of Dr. John H. Rauch, the Executive Officer of the State Board of Health of Illinois. Long a medical teacher himself, a pupil and member of the great Agassiz, scholarly and worldly wise, the relentless foe of ignorance and dishonesty in his profession and out of it, he was peculiarly fitted by nature and education for the task assigned him. Displaced from the position which he had filled with so much honor by the exigencies of political life, he only lived long enough to see much of his work set at naught in his own State. Intimately associated with him for years, and gathering much of the inspiration for my own work from his precept and example, I feel that I honor myself in honoring his memory.

The present very satisfactory law in this State was only secured after many trials and failures. I have never been able to learn who prepared and secured the passage of the law of 1874. Up to that time, and practically up to 1888, there was free trade in medicine, any person being permitted to practice with or without an education or a diploma, and subject only to the common law. As has been before said, this had passed unnoticed in *ante-bellum* days, as quackery was comparatively unknown.

My legislative experience began in 1880, when, as your representative, and with the approval of the State Board of Health, I prepared and had introduced into the General Assembly a bill with substantially the same provisions as are embodied in the present statute. The bill was promptly smothered in committee, the chairman and two of the members being non-graduates, of which fact I was then ignorant. They assured me that they would take good care of the bill, and I suppose they did. The bill of 1882 was killed by the persistent opposition of a medical member who had been sued by a member of the Board for his tuition fees ten years before. That of 1884 met the same fate from the opposition of the medical schools of Louisville under a misapprehension; but it was too dead for resurrection that session before they had been made to see their mistake. That of 1886 passed the House, and I had every assurance it would pass the Senate without opposition. As it failed to do so, I went up again two days before the session closed to ascertain the cause of the delay. Upon my arrival the chairman of the committee, who was an estimable non-graduate physician, disappeared with the bill in his pocket, and was not found until after the session had closed. In 1888 the bill passed, but so emasculated that it fell far short of its objects. In 1890 it was improved, but was still weak and unsatisfactory.

My work often appeared like that of Sisyphus, as for ten years my rock had rolled back each time just as success

seemed assured. The evils of quackery became, however, more and more apparent, and the idea gained friends from year to year both within and without the profession. The State and local boards of health had also grown in power and importance, and their influence began to be felt. In 1893 the present comprehensive statute was enacted, exactly as I had drafted it, through the efforts and influence of the medical members of the two houses and that of leading physicians throughout the State.

As I had exhausted every honorable means at my command, as well as those of my colleagues, for thirteen years, often at serious personal sacrifice of time and money, to secure the passage of this law, you can imagine my surprise to find it opposed by some reputable medical men. In good time this opposition disappeared also, under the conservative policy adopted by the Board for its enforcement, although it greatly increased the labor and correspondence incident to putting the law into operation, and gave much temporary aid and comfort to the quacks.

In attempting to make it clear to you that any permanent elevation of our standards must be educational in character, and backed by legislation procured and sustained by the better class of the profession, the principal difficulties to be met have been incidentally referred to. Others remaining to be considered will now be briefly taken up in the order of their importance.

Of these the so-called medical-preceptor and official-pupil system ranks first, being in fact the tap-root of our present evil medical educational system. As it now exists it is an evil of modern growth, and I am sure that its magnitude and far-reaching effect upon the profession is not generally appreciated. Few physicians are competent instructors, and these usually belong to the busy class who do not take students. As a preceptor the average doctor is a farce and a failure, and yet it is the average doctor and under who is so prolific of

students. The entire system is the relic of an age where entirely different conditions prevailed. Under the old regime, when the physician was also a pharmacist, and when teaching was almost entirely didactic, office training had an entirely different place, and the student was an important adjunct. The individual doctor of that time was an important personage, and to be his students was an honor accorded only to a privileged few. Like the lawyer of that day the doctor came from the cavalier class, and, like him, he honored it. Well-fed, well-dressed, white-chokered, courtly and dignified, and sometimes even a little pompous in manner, having himself a profound respect for his profession, and demanding for it the respect of others, the oracle of his community, because usually the best educated man in it, his influence upon his rare student, who was the educated son of his friend and neighbor, was ennobling, and his bearing and manner infectious. Some of this noble race are still with us, a few, whom it would be pleasant to mention were it not invidious, always attending and lending a hallowed influence to our annual gatherings; but most of them have passed away, or have been displaced by the hustling, bustling modern doctors who swarmed into the profession like locusts during the interregnum above mentioned, and with their students and their students' students now crowd each other almost to the starvation point in city, town, and country.

I want to speak plainly upon this point, and yet would not be misunderstood. The educated physician of to-day, though less picturesque, is scientifically superior to any that has preceded him, and the majority are fairly well qualified, but the lower stratum, the element which is dangerous to the best interests both of the profession and of the public, very respectable in numbers only, sprang from an entirely different class, and is quite apart from the body of the profession in aims and ambitions. The average of this class is often unkempt in person, illiterate, has attended no school or a

cheap one, takes no journals, belongs to no societies, has no library to speak of, and no instruments except a rusty pocket case and two or three gum catheters, is very tenacious of his rights as against other physicians, has a holy horror of any thing not in accordance with the Code, which he has probably never read, and he practices medicine because he finds it easier to eke out an existence as a doctor than in some other vocation for which nature and education have fitted him. That this is no fancy sketch is attested by the fact that several copies of the original can be found in nearly every county.

If such a man would be content to confine himself to the practice of medicine the evil would end with him; but he is ambitious to become a teacher, and his sons, nephews, and those of his neighbors, finding how easy and cheap it is to get into the profession, gratify his ambition, are soon found in that one of our colleges which has the shortest terms, and they too become doctors and have students, and this is repeated to the third and fourth generation. Many of the better class of physicians also make an evil of the preceptor system by permitting or inducing young men who have no special qualifications to become their students for family or other influence, or because they do not like to say "no" to a fond and ambitious mother.

Largely from these sources the profession is rapidly becoming overcrowded, especially in its lower ranks, to a degree which works great evil to it and to the public. Pressed for the means of support, they underbid each other and resort to other black arts to get practice in many instances, and sink lower in the scale from year to year. From the more shrewd and unscrupulous, who are thus forced to the wall, come the itinerant, advertising, and patent-medicine class, which has so scandalized the profession in recent years. In all this the public suffers equally with the profession. A doctor who is a failure financially is usually a poor one in other respects, and his patrons are often even the greater sufferers.

It has become the fashion to lay all the blame for this unfortunate condition of affairs at the door of the medical colleges, but years of experience and patient investigation have convinced me that much of this is unjust. It was doubtless true that at one time some of these institutions were run, as the Democratic party proposed to run the tariff before Gorman and Brice took charge of it, "for revenue only," but these were the exceptions to the rule among those which professed to be reputable. It is also true that the profession is almost as overcrowded with schools as with doctors, and that in the close competition between them many students were matriculated and graduated who were prohibited by illiteracy from profiting by the course of instruction, except within narrow limits; but, before the day of rigid legislative tests as to the right to practice, the schools were in a large measure helpless. They did not manufacture students, and, like mills, could only grind such grist as was sent to them by the preceptors. As there was nothing to prevent even the poorest student from becoming a full-fledged doctor without the formality of a college course or diploma, they could well afford to be independent. Nearly a thousand of this class were found practicing in this State when the law of 1888 went into operation, and many of the older ones are still doing so under the liberal time clause of the present law. I feel that it is proper for me to say that we have always found the faculties of the medical schools of this State and elsewhere in the front rank of those who are laboring earnestly in this cause. They brought a strong and essential influence to bear in securing the passage of our law, and in the days of trial many of them stood shoulder to shoulder with those charged with its enforcement. There are doubtless laggards among them, doubtless a number of them who can not be relied upon to stand to their agreements, and these, as may be easily understood, greatly hinder the advance movement; but on the whole it would be well for the profession if all others were

contributing as much to its upbuilding as our medical teachers are doing.

With the improved facilities of instruction, with four years' study and three courses of lectures assured, it will be the fault of the individual, or of his preliminary education, if he does not come out fairly prepared for his life-work. There still remains the difficulty of devising some satisfactory practical plan for insuring a proper preliminary education before the student is permitted to matriculate. This is a matter of such vital moment as entitles it to the most careful consideration. The standard should probably be fixed by the licensing bodies after conference with the college faculties, and the latter should probably be entirely relieved of the responsibilities and temptation of passing on the qualifications.

Another great practical difficulty grows out of the local personal jealousies between physicians. In the public estimation this is our most vulnerable point, and the one that brings upon us the most odium. Its extent and all-pervasiveness can only be appreciated by one brought in constant contact with the profession over a large extent of territory. With a few notable exceptions, in city, town, and country, I have found its blighting influence co-extensive with the State, embittering the lives of medical men, their families, and often their friends. In most little hamlets where there are two doctors there are two factions, with the whisperings and inuendoes incident thereto usually false or greatly exaggerated on both sides. I have received hundreds of confidential letters, often badly spelled and worse written, growing out of this condition. In one mail would come a letter telling me that "the law will be useless and a dead letter in this community unless Dr. X, who is very ignorant and unprofessional, is shut out," and the next would probably bring one from his neighbor making similar or worse charges against him. Investigation usually showed that each stood equally well with the other in the community. This state of

affairs hampered the work of our referees in many counties, and was one of the most serious obstacles encountered in putting the law into operation.

I have given some thought to this peculiarity of our profession, but confess that no satisfactory explanation has occurred to me. It is true that we lead isolated business lives, but this appears an effect rather than a cause. With this exception physicians compare favorably in liberality of views with the other learned professions, being even more free-handed in charity than any other. I am convinced that our profession contributes more to the poor every year than all the churches and ministers combined. In the long run I have never known any doctor benefited by this course, and, to say nothing of the wear and tear on the temper, and of the disgrace it brings on the faculty, there is every conceivable reason why they should get along agreeably. Enlisted in a common cause, often in perplexity and doubt, the advantage and comfort of a free interchange of opinion in and outside of the consultation room would be an inestimable boon, and the cultivation of the feeling and manner which would make this possible would give our profession a position in public estimation which it very much needs to have, and which would increase both the pleasure and usefulness of its work immeasurably.

You will doubtless notice that all the obstacles referred to are intra-professional. This will hold good till the end of the chapter. We have nothing to fear except from incompetency and dissensions within our ranks. What its best elements unite in asking for the professional and public good, and rightly considered these are inseparable, the law-making powers now gladly accord, and the courts and executives as willingly enforce, and with the rank and file properly educated and organized it would be invincible for all that is right.

The incentives to this work are abundant, and the time is propitious. Properly utilized the passage of the law marks

an era in the medical history of the State; but unless the work so auspiciously begun is followed up a reaction will soon set in. This has been the experience in Illinois and other States, and ours is not likely to prove an exception. Kentucky was long a rich field for the charlatan, and it will not be easily abandoned; and we may always count on an element, professedly within our ranks, who will support any effort made to break down the law. Under one pretext or another, but usually, as it will be claimed, to strengthen it, these efforts will be renewed from year to year, and it will require eternal vigilance to prevent their success.

Societies should be organized in every county in the State, and through these every eligible physician within her borders should be brought into this Society and receive its literature, which would be greatly enlarged and improved by such an opportunity. If necessary the State should be divided into districts with an organizer in each to work under your direction. The immediate advantage resulting from the successful inauguration of such a plan would be great, and the remote value incalculable.

And this is your work. No other organization is equal to or will attempt it. You can combine and utilize the rank and file of the profession, the local societies, and the schools as no other organization can. The State Board of Health realizes and always has realized that in this work you are its chief inspiration and support. When others wavered, you cheered us; when the result seemed doubtful, your worthy president and every individual member throughout the State held up our hands. We now ask you to complete and make effective that part of the work which you alone can do.

Under the influences here portrayed our profession has passed and is passing, not wholly unscathed, through a terrible probation, and the end is not yet in sight. Unless the present advance is systematically followed up by you it is likely to prove an episode rather than an epoch in our

history, a mirage which we had thought was a mainland; but, if it is followed up, I feel that we might safely say of ours, as did the poet priest of our fair Southland of another noble cause:

Look aloft! look aloft! lo! the clouds drifting by;
There's a gleam through the gloom, there's a light in the sky.
'T is the sunburst resplendent—far flashing on high!
For our dark night is waning, our day dawn is nigh!

HOW LONG UNDER CERTAIN CONDITIONS COULD THE AVERAGE LONGEVITY OF MAN BE MAINTAINED?

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As hygiene and prophylactic medicine seem to occupy the attention of many medical men at present, this would not seem to be an inappropriate question.

Dr. Dalton, of St. Louis, in a very able and interesting paper in the Journal of the American Medical Association of June 3, 1893, tells us how to live so as to attain old age. Although he points out very important essentials in the way of living, there are some, I think, of equal importance which he has omitted. However, it would require a very long paper to embrace every thing in this connection.

I have long entertained the belief that, by observing all the laws of health, the time allotted for man to live during the time of Solomon might be attained in our age of the world, although at present it only amounts to about fifty per cent of that time.

There exist two prominent factors in our time which contribute very greatly to shorten life, which did not pertain to a very great extent in the days of the wise king. I allude to the present state of civilization and the common violations to the laws of health.

The many ways in which health is destroyed and life shortened by the influence of these factors are so palpable to the observant mind, that it is hardly necessary to allude to them except in a cursory manner. In fashionable life we

see every day health injured by late hours, imprudent dressing, overeating and drinking—many times to gluttony of indigestible food and to inebriation of intoxicating liquors. This kind of living soon impairs the digestive functions, and if continued ends in general impaired health and premature death.

There are many diseases resulting from what we term modern civilization; but of this we shall speak more hereafter. If we wish to prolong the life of a generation we must commence with the infant. The mortality of childhood is very great, and no doubt great amelioration in this particular could be effected by proper management. This large mortality pertains to cities and large towns more than to the country, and is due mostly to avoidable causes.

We notice in fashionable life that infants, as a rule, are turned over to the wet or some other nurse, many times without regard to proper qualifications or adaptation, where the child fails to receive due attention in many particulars. The little thing may be half starved, or supplied with unhealthy food, and badly treated in other ways. No one but the mother should have entire supervision of an infant. It is in early infancy that strict attention and care are so essential. The mortality of the first few months is very great, and especially is this the case during the first weeks. I have always thought if the first few months of infancy could be more directly brought under the supervision of the profession that many young lives might be saved that now perish.

It is in the hot summer months that mortality among infants in cities is so great, especially among the poor. They, as a rule, are confined to unhealthy localities, and suffer for want of fresh, pure air and proper food, and many times are crowded into narrow quarters. Under such circumstances fifty per cent of them will die before the fifth year. Take the State of Kentucky as a whole, and the mortality of infants under five years of age is over forty-two per

cent, and twenty-five per cent under one year. But, of course, it is much greater in large cities.

Now it would seem to the thinking mind that some means could be used to abate this terrible infantile mortality. Philanthropy must reach forth a helping hand to improve the hygiene of the infant's home, as well as to exercise proper supervision over its management in the way of diet, etc., especially during the first year of life. These remarks apply more particularly to cities and towns.

As before remarked, it is impossible to greatly lengthen human life while infantile mortality remains so great. As a rule, in the country, especially among the poor, children are more healthy and grow up to be stouter men and women than those more delicately reared. They live mostly in the open air and are fed on plain food. If a child of healthy parents runs the gauntlet of such diseases as children are subject to, and at ten years is in good health, with proper care in the observance of all the laws of health in the way of diet and the avoidance of exposure, we can not see why he may not attain to old age.

In the first place the functions of digestion must be protected. This is the most essential factor in the preservation of health. Errors must not be committed either in eating or drinking. The diet should be such as requires the least labor on the part of the stomach to manage, and at the same time in accordance with the occupation of the individual. If he leads an active, laborious life, he will require more of the proteid or nitrogenous element in order to keep up muscular strength. It is as injurious to the health to eat too much as too little; the quantity being regulated by the character of the occupation. Severe physical exertion should be avoided, especially should it not be prolonged. Heart strain and apoplexy may thus be avoided. If no indiscretions in eating and drinking are committed, and proper exercise practiced, our digestive powers will be apt to be maintained.

The question now arises, can we by maintaining a proper diet, so as to insure normal digestion and assimilation, prevent the occurrence of chronic diseases which frequently develop under opposite conditions? We are inclined to the affirmative of this problem. No doubt most physicians who have practiced for many years have observed that phthisis pulmonalis, amenorrhea, anemia, etc., nearly always have their origin in functional derangement of the stomach and malnutrition. In fact in this condition we possess much less resisting power to the onset of many diseases.

Owing to the failure of proper digestion and assimilation cellular function and metabolic action become greatly impaired. The skin and bowels now become torpid, and excretion devolves mostly on the kidneys. It is the opinion of some medical men that in a state of impaired health we are more apt to have the development of tumors, both benign and malignant. In fact in carcinoma it is common to notice a peculiar dyscrasia or anemic condition preceding the formation of the tumor. This has been the observation of the writer in several instances. And it is admitted by most bacteriologists that pathogenic germs have but little effect on persons in perfect health.

Now these considerations should induce people to endeavor to preserve their health by every means at their command. If we should imprudently or unadvisedly commit any fault in diet or drink, or should expose ourselves to inclement weather, or do any thing by which health suffered the penalty, it should be a reminder not to repeat the indiscretion. It should be our main duty to study the proper means of preserving our health, for without this our enjoyment is limited and our days shortened.

It is not only the opinion of some that good health can be maintained by proper diet, etc., but that certain diseases can be greatly benefited if not cured by the same means. It is now believed by some acute observers that carcinoma is the product

of starved or degenerated cells, and that, if the patient can eat, digest, and duly assimilate proper diet, the growth of the tumor will not only be arrested but diminished in size. Good, healthy blood, they maintain, is antagonistic to abnormal growth. This seems to be a reasonable proposition.

Dr. Salisbury maintains that some diseases can be cured simply by dietetic means; and if it is true that good digestion and assimilation will prevent the development of disease, why may it not retard or cure it after it is formed?

The writer has seen great good result in the treatment of chronic disease by proper nourishing diet, and is elated with the hope that greater attention will be given to the matter in the future.

A great many fads in medicine are being brought into view, among the latest of which is the use of the various tissues of the inferior animals for disease of similar tissues of the body—as the muscular, nervous, vascular, and glandular, in the form of their extracts, called musculine, vasculine, neurine, and glanduline. If we have degeneration of muscles give musculine; if involvement of the nervous system, neurine is the remedy, and so on. These extracts, or active principles, are to be injected into the blood.

This reminds one of Dr. Hammond's late fad, which might be termed organopathy. He prepares extracts of the various organs of the sheep or bull, and in case of disease of any special organ uses the extract of the corresponding organ of the animal as a remedy. The former of these fads is not new, but was in vogue forty or fifty years ago under the name of isopathy. Dr. Wood suggests that it be called sarcology. Dr. Hammond's fad is an extension of Brown-Séquard's rejuvenating process by testicular juice. This is one of the oldest fads extant. It was practiced by the dissolute nobility of ancient Rome to increase their virile powers and appetite. They, however, used the testicles of goats instead of sheep. Hammond claims great beneficial results from his

cerebrine and testine, and entertains the hypothesis that the extract of any organ of the inferior animal, to wit, the bull or sheep, is a remedy for a corresponding organ in man in a state of disease, either functional or organic.

There may be some truth in this hypothesis, as we know that in the absence of the thyroid gland we have myxedema, and it is now claimed that the thyroid of the inferior animals, for instance the sheep or ox, will greatly ameliorate if not cure the disease. Also we might cite the diseased or lost function of the pancreas, wherein we have glycosuria or diabetes as the result. It is now claimed that pancreatine or the pancreas administered in such cases will act as a remedy against the formation of sugar.

If these claims are true, why may we not indulge the hope that, if we use such diet as we know the system demands in order to perform the various functions of the economy in a healthy manner, we may be able to ward off many diseases which we are subject to under ordinary circumstances. Of course in conjunction with proper aliment we must observe the various laws of health in other particulars.

In order for any people to acquire the average longevity of three score and ten years, it would be essential to have enacted some statutory laws which are now regarded as sumptuary. There should be laws against intermarriage of close consanguinity, and all persons afflicted with constitutional or hereditary disease, either physical or mental. A prohibition of this kind would tend greatly to lessen the mortality of infants.

There is another cause of disease and death that might be abolished under proper restrictions, although, so far, effort in this direction in most instances has proved to some extent abortive. I allude to the prohibition of the manufacture and sale of alcoholic liquors. If the excessive use of spirituous liquors could be prevented, a great step in the prolongation of human life would be attained. This is not all; the happiness, morals, and prosperity of the human race would be

wonderfully advanced. To say nothing of its detriment to health and life, we might safely charge, directly and indirectly, eighty per cent of the misery, poverty, and degradation of the human family to this pernicious cause. Aside from the many physical ailments of which intemperance is the progenitor, we have as its results a large proportion of the mental troubles due to involvement of the nervous centers. In many instances these troubles are entailed on offspring through the agency of heredity. The question here arises, how can the destruction of human life and happiness due to the use of alcoholic liquors be curtailed or prevented? This problem, if ever solved, will find its solution some time in the distant future. It will be when politicians and so-called statesmen will have arrived at the conclusion that health and happiness of the people are of greater value than dollars and cents. As long as commercial interests override every thing pertaining to the welfare of the people, there is no hope that any measures will be instituted by which this great curse shall be avoided or abolished. Our legal authorities, both national and municipal, issue license for the sale of this deadly poison, knowing the terrible consequences that will result. They claim that legislation to prevent the manufacture and sale of alcoholic liquors would be depriving the people of inherent rights. They do not consider that it is the duty of the government to enact laws to protect the welfare of the people. It should be the first consideration of all governments, and more particularly a free, republican form of government, to legislate for the health and happiness of its citizens. It is on this feature of our government that a National Health Board is formed, as well as the establishment of quarantines and the erection of hospitals. But it seems, as before remarked, that when it comes to weigh commercial interests against the welfare of the people the latter is entirely ignored.

If an epidemic or contagious disease, such as cholera or

yellow fever, threatens our shores, the Government, as well as the people, become greatly alarmed and immediately institute measures to prevent it. They do not take time to think that the use of alcoholic liquors destroys more lives annually than all the epidemic diseases we are subject to, either of endemic or exotic origin. Until this fact is properly appreciated the destructive influence of drink on the morals, health, and life of the people will be apt to continue. The people of the United States pay annually over one hundred and fifty million dollars as taxes on alcoholic liquors, the commercial value of which by the time it is consumed equals nearly one billion dollars. This represents the cost of one article people pay for by which health is destroyed, paupers produced, crime committed, morals contaminated, and insanity and death result. Now, can we reasonably offset the value of this article of commerce in the way of government revenue, in dollars and cents, by the loss sustained on the part of the people by its use? In the first place we will estimate the value of human life directly and indirectly destroyed by its use, which represents at least fifty million dollars. Then, if we calculate the cost of State and municipal governments made necessary on account of criminal conduct due to the use of intoxicating liquors, to say nothing of the cost of keeping prisons, hospitals, and asylums, we have indicated an offset to the estimated commercial value of this great health destroyer, including the government revenue it affords.

The unprejudiced mind can easily conceive what a vast difference would exist in a moral, intellectual, and financial aspect among a people where no ardent spirits were used, to say nothing of good health. This difference was plainly manifested in the little city of Pullman, near Chicago, a few years ago. It had no saloons nor police force, and if any violation of law or morals was committed it was done by outsiders.

Can we hope that some time in the distant future such a utopian condition of the people may supervene, or shall we

wait until the millennium arrives? But in our opinion the supervention of the first would be the inauguration of the latter. It is a plain problem that, as long as the prevalent use of ardent spirits exists, without divine interposition the millennium will not come.

There are other excesses which might be mentioned, that tend to impair physical functions and shorten life. We allude more particularly to excessive venery and use of tobacco. Many boys and young men are ruined in health by these pernicious habits. Parental control and moral suasion are the best means to be used to prevent the contracting of such habits. Prostitution on the part of girls and young women tends greatly to shorten life. The average life of the prostitute is about four years, many of them committing suicide.

Aside from observing all the laws of health and avoiding the causes of disease, it is very essential to aid longevity by cultivating an even, pleasant, and happy temperament. If we permit ourselves to fret and get out of humor at every little obstacle or unpleasant thing that may meet us in the path of life, we will to that extent injure our health and shorten our lives. Let us be happy and contented in all things.

Now, as to the longevity of man, the question may arise, would it be better for people to live to be old? Some may be impressed with the idea that old people do not enjoy life, and are only a misery to themselves and a burden to their friends. From the observation of the writer this is entirely an erroneous opinion. I have known many people over seventy years old, and have noticed that they enjoyed life as much as young people. Of course the trend of their enjoyment was in different channels from that of the giddy young, but apparently equally as great. And it can be safely stated as a settled maxim, that, as a rule, an old person in good health enjoys life, in various ways, as much as when young. I am well aware that the opinion of the young is in contravention to this hypothesis. They think when people grow to be old

that their minds are occupied in the thought of and preparation for death, and regard it as singular that such is not the case. When young I entertained similar views, and thought it very strange to see old people happy and enjoying life. But now, as I am past the time allotted to man in the days of Solomon, I feel qualified to state that old people in good health can live as happily and enjoy association with their friends as much as when young. As to the contemplation of death, both old and young should have some regard to the matter, as it will sooner or later overtake us, but this thought is no more distressing to the old than it is to the young. The old adage is very true, that "the young may die, but the old must." We should so live as to be able to take a satisfactory retrospective view of our lives, then the thought of death will have no terrors for us. This mode of life affords us a contented and happy mind, which, as before remarked, greatly contributes to health and longevity.

When we have passed the zenith of life and our faces are turned toward the occident, it is time we should exercise charitable and kind feelings toward our fellow man. I have always entertained an abiding affection toward all true members of our profession, and as I grow older I believe that brotherly feeling increases. I never feel so happy and contented as when in congenial association with my *confrères*, and can truly say that here is hoping that they all may live to be as old as myself and feel as happy. My health is such at present as to induce me to hope that another quarter of a century may be added to my life.

As stated in the outset, I believe that if proper attention is given to the various periods of human life, at the same time avoiding as much as possible the causes of disease and death, that we will approach the average life allotted to man in the days of the wise king. And I can say to my young *confrères* that they need not fear living to be old if they will practice the precepts here inculcated.

ACUTE LOBAR PNEUMONIA; ITS ETIOLOGY AND PATHOLOGY.

By J. B. Marvin, M. D.
Louisville, Ky.

The following is a synopsis of Dr. Marvin's paper:

Dr. J. B. Marvin, of Louisville, addressed the Society extemporaneously on the subject of "Acute Lobar Pneumonia; its Etiology and Pathology." The speaker drew the usual sharp distinction between croupous and catarrhal pneumonia, and, without discussing the features of the latter variety, exhibited the former in the light of recent research. Acute croupous pneumonia is a specific febrile disease. The lung lesion is its local focus, the phenomena of engorgement, solidification, resolution, etc., being due to the rapid proliferation in the air-cells of pathogenic bacteria. The claims of different bacteria to rank as etiological factors in the disease were clearly set forth. The diplococcus of Friedlander (bacillus pneumoniæ of Flügge) seems to have given place to the micrococcus pneumoniæ-crouposæ of Fränkel and Sternberg.

The production of toxalbumens by bacterial growth and their influence upon the clinical features of the disease were learnedly considered. His remarks were well illustrated by numerous lantern slides and cultures.

TREATMENT OF ACUTE LOBAR PNEUMONIA.

By John A. Lewis, A. M., M. D.
Georgetown, Ky.

In very many respects a false faith is preferable to no faith at all. The medical writer of the first half of the present century could approach the subject of the treatment of acute lobar pneumonia with a much higher degree of confidence than can any medical writer of the present day. The explanation of this seemingly remarkable statement finds its solution in the fact that the pathology of pneumonia at that time was considered as fixed and settled beyond the shadow of controversy.

A physician then would just as soon have doubted his own existence as to have questioned the fact that in the treatment of pneumonia he had to combat real pneumonitis, a true inflammation of the lung substance, accompanied by a train of symptoms which were entirely dependent upon and secondary to the lung inflammation.

The physical and rational symptoms of the disease clearly pointed to this local condition, and *post-mortem* examinations revealed such to be the truth. In the *post-mortem* revelations he found a picture of acute inflammation as typical as could possibly be furnished.

Thus in pneumonia not a single symptom of inflammation, as taught at that day, was absent; "heat, pain, redness, swelling" were all found. His pathology thus settled, he advanced to the work of treatment intelligently, confidently, systematically. He believed something, hence he did something.

He selected his remedies, had faith in them, he double-shotted his guns and turned them loose on the enemy in terrific style.

And, no matter what his mistakes may have been, none can fail to honor him for the courage he exhibited in standing by his convictions.

Those were the days of heroic medicine; the people believed in the doctor and the doctor believed in medicine. He confidently believed that he possessed remedies by the means of which he could cure disease, and that without the administration of the proper medicine disease must go on from bad to worse.

He failed to recognize in nature a great physician.

A single glance at the armamentarium with which he attacked pneumonia will be sufficient to convince the most skeptical of his confidence in his therapeutic resources.

Blood-letting, antimony, calomel, opium, these were his dogs of war. Nowadays this strong combination would not long have escaped the euphonious soubriquet of the Big Four.

If some master hand should undertake to place upon canvas a picture which might in some measure portray the confidence of the medical profession in the therapeutic resources of the healing art in this heroic age of medicine, I do not think he would go far wrong in painting the picture of one of the "Old Phlebotomy Heroes" standing erect over the blanched and still bleeding form of some frail patient, his lancet tinged with the crimson of the median basilic, pointing to the heavens, across which was plainly written the inscription, "*In hoc signo vinces.*"

In those days men were bled, starved, blistered, salivated. Is it strange that human nature soon revolted against such extreme methods? Extremism always carries within itself the seeds of its own destruction. It took the Bastile to incite the French Revolution, and it took the antiphlogistic age with its "*strong medicines*" to set in motion a revolution

which completely overthrew the established methods of treatment of this, the Iron Age of the healing art. You and I have not yet heard, nor will we ever hear, the last of "strong medicine;" it is the specter which still haunts our footsteps and will not down. Truly, the "fathers ate grapes and the children's teeth are on edge." The years which have come and gone since the revolution in medicine began have witnessed many changes in the treatment of pneumonia. Under the guiding hand of such masters as Todd, J. Hughes Bennett, Nehmeyer, Chambers, and others, we have passed successively through the restorative, expectant, and the antiseptic methods. Bleeding has become a lost art; antimony found a substitute in veratrum viride and aconite.

Whisky, quinine, and digitalis were found absolutely necessary to meet what the older physicians were pleased to call a change of type in disease. Salines replaced calomel, and blisters became almost obsolete. In the field of regimen the revolution has been no less marked; gruel, skimmed milk, chicken-water have been replaced by stronger diet of beef tea, cream punch, egg-nogg, and various forms of concentrated and nourishing foods.

I have thus reviewed hurriedly the various changes through which the treatment of pnuemonia has passed in the last half century, with the hope that it might prove of value to us in confronting the problem of treatment as it presents itself to us to-day.

Upon a close investigation of the treatment of pneumonia, as taught by the best writers, that I might be able to present to you in concise and tangible form the latest and most improved methods, I found, just as I expected, that a transitional pathology had given rise to many and widely different plans of treatment; indeed the plans advocated are almost as numerous as the writers, scarcely any two of them agreeing.

Finding myself discouraged in this direction, it occurred to me that I might get some index as to the most successful

methods of treatment from the tables of statistics which have been compiled from time to time. But here again I found myself baffled. Statistics furnished me no light whatever as to the best plan of treatment. Indeed, about the only thing which they incontrovertibly establish is the fact that the rate of mortality in hospital practice under all plans of treatment has averaged nearly or quite 25 per cent.

This seemed very high to me, and I am quite sure that the private practitioners will join me in the statement that our mortality is hardly half so high. I do not believe that it would reach more than 10 per cent; but this statement is made without any accurate figures, and all recognize the fact that one may be readily mistaken.

It is a long time before a private practitioner has one hundred cases of pneumonia, and it is very difficult to remember how many of these die; it is very much easier to remember how many live—the living are reminders of themselves, the dead are so reticent upon all subjects. Most of you, I am sure, will readily recall that familiar figure in every neighborhood of the physician who has never lost a case of pneumonia—uncomplicated, of course. What a godsend complications sometimes are.

I also found that many of our best authorities claim that the mortality in pneumonia has remained about the same under all plans of treatment, and that the disease really requires no treatment at all, but should be left to nature as the best physician. I felt so discouraged by these investigations that I was about to sum up the whole matter and dismiss the subject of treatment of pneumonia with the scriptural injunction, "Stand still and see the salvation of the Lord."

But upon more mature reflection I can but feel that we have some very valuable therapeutic resources which, if rationally applied to the relief of the dangerous tendencies in pneumonia, can not fail to alleviate distress, lessen mortality, and hasten convalescence.

Juergensen wrote, in 1875, "Croupous pneumonia (synonymous with acute lobar pneumonia) is a constitutional disease, and is not dependent upon a local cause. The pulmonary inflammation is merely the chief symptom, and the morbid phenomena are not due to the local affection. The hypothesis of a morbific cause is indispensable." Nothing could have been truer; to-day nearly all the authorities place pneumonia just where Juergensen placed it, among the acute infectious diseases, and they recognize the diplococcus pneumonia of Fränkel as the pathogenic micro-organism which produces the disease. Osler defines pneumonia to be "an infectious disease characterized by inflammation of the lungs, accompanied by constitutional disturbances of varying intensity."

Now in the treatment of pneumonia, in connection with the pathology stated above, there are certain facts and certain dangerous tendencies attending the course of the disease which it is necessary to keep in mind if we would battle intelligently and successfully with the disease:

1. The disease is an infectious fever and has a definite course to run.

2. Its course is a short one, usually ending in an abrupt crisis about the seventh day.

3. Our plain duty is to keep life in the patient until nature effects the cure.

4. No routine plan of treatment can be adopted suited to every case.

5. The majority of deaths result from heart exhaustion.

6. Rapid action of the heart together with the increased power required to overcome the resistance in the pulmonary circulation are the two main factors producing heart exhaustion.

7. The fever is the result of the growth of bacteria, attended by the formation of poisonous chemical products in the system.

8. As yet we have no safe or certain agent by which we can destroy the diplococcus pneumoniæ in the human body.

9. An overdistended right ventricle from pulmonary obstruction is one of the greatest sources of danger.

10. Pain, cough, sleeplessness are extremely wearing upon the vital forces of the patient.

With the above facts kept constantly in view let us attempt to apply our remedial agents to the treatment of the disease. A patient suffering from pneumonia should be placed comfortably in bed in a well-ventilated room with a temperature of 65° to 70° Fahrenheit. He should be allowed no company except his nurse, all conversation interdicted, and perfect quiet from noise and disturbance of every kind be enjoined.

Perfect rest of mind and body is very essential, that every vital energy may be husbanded. An active purgative should be given, it matters not whether it be a saline or a dose of calomel; the object is, so to speak, to clear the deck for action. The patient should be allowed all the cold water he may desire to allay his thirst. His diet should be plain, nutritious, and easily digested, in moderate quantities. Milk, soup, eggs, rice, oatmeal constitute the best forms of regimen. For one I do not lay so much stress upon feeding the patient so fully and so systematically as in fevers. An attack of pneumonia is usually of short duration; and as the majority of the human race, in my opinion, are constant sufferers from the half-digested products of overeating, which can best be gotten rid of by a week's starvation, I do not allow myself to be made miserable if my patient eats very sparingly for several days. The chest should be enveloped in moist, hot applications for two reasons: first, because it relieves pain and adds greatly to the comfort of the patient; second, because it determines the blood to the surface by relaxing the capillaries, relieving thereby the tendency to overdistension of the right heart.

Spongio-piline is a most excellent application for this purpose; it is clean, light, and retains its heat. I know of no

superior form of application of moist heat. Other methods of application are largely in use, consisting of poultices of various kinds. The oiled silk jacket makes a light and efficient application.

If the patient suffers much pain during the first stage of pneumonia, some form of opium should be used to allay it. The best forms for its use are the hypodermic injection of morphia, Dover's powders, or codeine. Pain, cough, sleeplessness are the little foxes which harass and worry a patient and greatly exhaust the vital power. You can not more worthily bestow your attention than in relieving these trifles. If there is any contra-indication to the use of opium, then sulfonal, trional, bromides, or chloral may be used, as judgment dictates. In the later stages of pneumonia opium is a dangerous remedy, especially if cyanosis is threatening, and if used at all it must be used with the greatest caution. If you are tempted to use it freely you will regret it with a lifelong regret. If pain continues late in the course of the disease apply a blister over the painful region, unless it be upon the back. I should hesitate some time before applying a blister to the only place upon which an exhausted patient can lie with any degree of comfort. The blister should not be applied with a view of hastening resolution, but to relieve obstinate pain. A blister will do this when nothing else will. I speak confidently upon this point from experience. But by far the most important item in the treatment of pneumonia is the control of the rapid heart's action. The heart is the muscular pump of the body which forces the blood through the circulatory channels, and is capable of any amount of endurance at any thing like its ordinary rate of action, but when driven day and night at a rate closely approximating double its natural beat it can not long stand the strain.

If we can by the use of some remedy so control this rapid beat, resting the heart as it were, without materially weakening the muscular power of the organ, we have certainly made

great gain. In veratrum viride we have not only a very sure but a very safe remedy for reaching this very desirable end.

According to some of the best authorities veratrum is not a heart depressant, but rather a heart stimulant; but, granting that it is a heart depressant, it is certainly the least objectionable and the safest of all that class of remedies. In my estimation it is perfectly safe; it slows the heart, softens and strengthens its beat, and slightly lowers temperature. It is best given in the form of fluid extract, in two to four-drop doses every two hours until the pulse has been brought down to about 80. There it should be held by increasing or lessening the dose as may be found necessary. If the medicine should produce nausea, give five drops tincture of opium fifteen minutes before giving the other dose. If the patient should get too deeply under its influence (it will be manifested by clammy perspiration, nausea, slow pulse), give whisky and leave off a few doses of the remedy. The effects pass off very quickly and need cause no alarm whatever.

The remedy should be kept up through the first stage of the disease, and longer if it seems to be doing good work.

Aconite has been and is still much used for the same purpose. I can not believe it so safe or so effective a remedy as veratrum. Dr. Delafield highly recommends the use of $\frac{1}{400}$ grain aconitin combined with $\frac{1}{500}$ grain digitalin for the same purpose, that of reducing rapid heart's action, and for lowering temperature, advising use of whisky when undue depression arises. In addition to the use of veratrum to bring down the pulse, if the temperature still runs dangerously high, the use of some antipyretic means may be necessary. I have had most excellent results from the administration of phenacetine, or antifebrine combined with quinine in equal quantities, giving from 5 to 8 grains of the combination at a dose, from four to six hours apart.

Generally the dose need not be administered more than once in six hours. If you desire to see these antipyretics at

their best, then combine them with quinine. The quinine has no part in the reduction of the fever, but simply keeps the patient from any tendency to collapse, or coldness or clamminess of the skin.

The antipyretics act by reducing heat production and increasing heat radiation. By these remedies the temperature is reduced, the skin moistened, nerve tension lowered, restlessness calmed, sleep produced, and this is accomplished at little or no expenditure of vital power.

The antipyretic most commonly used in hospital practice is cold applied to chest in some form; it is applied as a cold pack, or by means of an ice-coil or an ice-cradle. The method used in the London Hospital by Dr. Fenwick is the ice-cradle, and seems to me to be the best method of applying cold. Dr. Fenwick reports forty cases treated by cold applications in eighteen months with a mortality of 7 per cent. This certainly speaks well for this plan of treatment. For obvious reasons this method of reducing temperature has been very little used outside the hospitals. Antipyretic means should only be used in the earlier stages of pneumonia. As the disease progresses and there is evidence of heart failure and an accumulation of blood in the right heart, the right ventricle receiving the blood faster than it can force it through the pulmonary circulation, we are confronted with a very grave problem. In this condition blood-letting would seem to be the most promising remedy, but experience seems to prove that the relief afforded is only temporary, and is gained at the expense of the vital forces. For a long time digitalis was the remedy in most common use for the relief of this dangerous condition; and even now the profession very generally adhere to its use to tone up the muscular power of the heart in this unequal battle with the disease. But many of the highest authorities question the advisability of its use, and indeed strongly condemn it as a dangerous remedy in an overdistended condition of the right

ventricle; the danger is heart paralysis. Those who look upon it as dangerous in this condition claim that digitalis acts most forcibly upon the arteries and arterioles, contracting their caliber, thus forcing the blood back upon an already overdistended heart.

The other side claim for digitalis a direct action upon the cardiac ganglia, increasing actually the muscular power of the heart itself. If this be true, it certainly goes very far toward overcoming the other dangerous tendency accorded to the drug. But in this state of doubt it behooves us to proceed very cautiously.

Dr. Fenwick has reported some very disastrous results in the treatment of pneumonia by digitalis. He reports forty-three cases and nineteen deaths. This would seem to be a very strong condemnation of its use. But right on the heels of this comes the statement of Dr. Petresco, who asserts that pneumonia can be cut short by the administration of digitalis in very large doses in the onset of the disease. He gives 75 to 100 grains infusion of the leaves of digitalis in twenty-four hours, continuing it three or four days without any bad effect. He claims to cut the course short in forty-eight hours, obtaining sudden and absolute reduction of temperature to normal, accompanied with reduction of fever, general improvement in patient's condition; pain and cough very soon diminish, and the healing process goes on to completion. This is claiming a great deal, and, if it proves to be true, certainly is a valuable addition to our knowledge.

Perhaps alcohol is the remedy most relied upon to relieve the tendency toward heart failure. This remedy not only stimulates the muscular energy of the heart, but by its power to paralyze the capillaries it determines the blood to the surface, thus relieving the overdistended heart. We have several other valuable remedies in this condition not open to the objections which are alleged against digitalis.

These remedies are strophanthus, strychnine, caffein. A flagging heart may be spurred into greater action by these cardiac stimulants.

Expectorants have been almost discarded from the treatment of pneumonia under the belief that expectoration played little or no part in clearing up the hepatized lung. This may be true, and yet in my observation those patients who expectorate freely and easily do best. And my own experience leads me to say this much in their behalf: in the later stages of pneumonia, when cough is harassing and pain present, an expectorant something after the order of the following prescription will give great comfort: Oil peppermint (not spirits), 1 gtt.; codeine, ⅛ grain; ammonium chloride, 5 grains; syrup tolu, 1 dram; to be given every two or three hours.

I have thus laid before you a plan of treatment which I am aware is not suited to all cases of pneumonia, and has many defects and inconsistencies, not filling the measure of scientific accuracy, and yet I trust you may find something in it of practical value.

Before concluding this paper I desire very briefly to refer to some practical investigations, as they relate to immunity and the treatment of pneumonia, recently published by the Klemperer Brothers, and which have attracted a great deal of attention. Since the investigations of Pasteur, and later of Koch, establishing beyond doubt the bacterial origin of many diseases in both man and beast, there has been an increasing and persistent effort to secure curative substances from among the cultured products of bacteria. You will readily recall the efforts which have been made in this direction in chicken cholera, anthrax, cholera asiatica, tuberculosis, diphtheria, tetanus, hydrophobia, etc. Notwithstanding the diligent work which had been done in searching for remedies for these diseases along the line above indicated, but little of real practical value has as yet been achieved.

But the eyes of the medical profession, indeed the eyes of the world, are looking very confidently to this interesting and well-worked field for important discoveries in the near future.

The Klemperer Brothers have recently created quite a stir among the bacteriologists by their reported experiments in the treatment and prevention of pneumonia by what is known as the "blood serum therapy." There is nothing new in their effort to render patients immune from attacks of pneumonia by the subcutaneous injection of attenuated cultures of that disease. They claim to have rendered animals entirely immune to attacks of the disease, and that this immunity sometimes has lasted for six months. But the claim that they are able to produce a crisis in pneumonia by the injection of serum of the blood of patients who have passed the crisis in the disease is new and important. The claim is based upon theory advanced by them, that the diplococcus pneumoniæ, which is the bacteria that causes pneumonia, produces in the blood a poisonous albumen which they denominate pneumotoxin, which when introduced into the circulation of an animal brings about an elevation of temperature and the subsequent production in the body of a substance called antipneumotoxin, which possesses the power of neutralizing the poisonous albumen or pneumotoxin.

The two poisons go on generating in the blood, the one poisoning the system, producing fever, delirium, and debility. This continues until the antipneumotoxin has increased sufficiently to have gained the mastery; the poisonous effects of the pneumotoxin are neutralized, the fever subsides, and thus the crisis in pneumonia is brought about. Thus it would seem that nature has generously provided with the bane the antidote.

They have further demonstrated, at least to their own satisfaction, that the serum of blood from patients who have passed the crisis in pneumonia contains the antipneumo-

toxin, and is capable of curing pneumonia when injected into affected animals.

In this way they were able to bring about an artificial crisis in pneumonia. This is a very plausible theory, and, if verified, certainly adds a very strong weapon to our armamentarium.

Now, in conclusion, let me add one word of caution against haste in adopting new theories and accepting new discoveries as true before they have been subjected to the severest test.

We are evidently about entering upon a new era as regards pathology and treatment of pneumonia. Let us recollect the lesson which has been handed down to us by our predecessors of the antiphlogistic school. Do not forget that they were men in every respect our equals; they were astute, honest workers after truth. They were perfectly sure they were right, yet in the light of subsequent history they were in all probability all wrong.

Let us proceed slowly, step by step, accepting nothing as true until verified. Even so insignificant a thing as a pathogenic micro-organism should be passed upon with exceeding caution. Be slow to herald every new theory abroad as a great discovery before it has been thoroughly tested.

It is now a matter of history that twice within the last decade the medical van, feeling sure that they had sighted the shimmering waters of the Euxine, shouted, "The sea! the sea!" and twice in humiliation and bitter disappointment it has been necessary to pass the word back to the columns eagerly pressing on, "It is only the mirage." We have seen the luster of the names of both Koch and Séquard dimmed by the too previous announcements of what were supposed to be grand medical discoveries. It is to be sincerely hoped that history will not soon repeat itself in this direction.

My parting injunction is, Try all things, hold fast to that which is good.

DISCUSSION.

DR. WILLIAM BAILEY, Louisville: I am satisfied with the presentation made by the first essayist as to the division of the subject and as to causation. I am satisfied the subject, if properly divided, should include catarrhal and croupous pneumonia; croupous pneumonia, the one under discussion, being so distinct and having such a specific history, must be regarded as a specific disease, and hence must have a specific cause. I am ready and willing to accept Fränkel's micrococcus as being the cause of croupous pneumonia, and as fulfilling all the tests that may be required of it; that is, every case must show the microbe, or at least ninety per cent of them, which is a fair average. And then, inasmuch as the disease can be propagated by inoculation by a pure culture, when every thing else is excluded it is capable of producing this specific disease. Furthermore I am satisfied from its specific history it has a definite course to run. It is not simply a local inflammatory process, because the fever in connection with it is not of that character. It is specific and independent of the character and amount of lung tissue involved. It has a specific history and its own type independently of what may be going on in the lung at the time. As a rule the disease terminates by crisis on the sixth or seventh day. If it was a symptomatic fever dependent upon an inflammatory process, then it should conform to the rule of catarrhal pneumonia, and the fever last as long as the inflammation lasts, and as the fever subsides terminate by crisis independent of the local process in the lung.

With reference to Dr. Lewis' paper, he has given us a good, plain, common sense, practical contribution. We must, in considering a disease like this, consider first its causation, and then the effect and manner if possible in which that cause operates to produce the disease, and govern our treatment accordingly to prevent the death of the patient. That should be the chief point for us to have in view. We do not cure many diseases, allow me to say, but if we prevent the patient from dying while nature is curing it we do very well. I am firmly convinced, either by the germ itself or by the natural physiological product of it wherever it is developed (call it a toxin, or a pneumotoxin if you please), that the poison is generated by a germ that operates as all other

poisons do. As the alkaloids operate on the nervous system, affecting materially the patient by the production of fever and their effect upon the heart, we have to combat the influence of the poison. By the development of the local process in the lung there is obstruction to the circulation, and hence additional work is placed upon the heart, the right side of the heart being responsible for this lesser circulation.

Now I think we have only two points in the management of pneumonia. One is, that the heart shall not be further taxed by the excessively high temperature, and the second is, that we must sustain the heart while it is laboring under this burden; hence I am ready to say, that inasmuch as this disease is characterized by high temperature, as a rule ranging from 104° to 106°, although it runs for a period of six or eight days, sufficiently long to produce death, I believe it is incumbent upon us to lower the temperature. With this end in view I have resorted to antipyretics. If we select them properly we can accomplish our object. I express my preference in favor of phenacetine. It has little if any power to reduce the heart's force. For sustaining the heart I am inclined not to disregard nutrition. During this short time the heart cries out for nutrition. I would nourish as much as I thought best. I would sustain the heart during this crisis, and I think under certain circumstances that digitalis is the remedy. The objections to it are principally upon the ground that it makes the tension too high, contracts the capillaries too much, and I am inclined to think we have in the nitrites and alcohol very appropriate agents for this purpose, they having the power to increase the action of the heart, to open up the capillaries and let off tension. The nitrite of amyl, glycerine, and alcohol are remedies of great service in the treatment of pneumonia. In addition to these, I think the hypodermic use of strychnia for the maintenance of heart power is very valuable, and I think we ought to pay more attention to this remedy in the treatment of all those diseases characterized by so-called heart exhaustion than is done at present.

Dr. John A. Larrabee, Louisville: I am not surprised that we should be so much at sea in regard to definite toxicæmic poisons. When the Israelites were freed from bondage and went into the land of Canaan they were paralyzed at the sight before them. When we have been liberated, as we have recently from

the bondage we have heard mentioned in the paper in the matter of therapeutics, we are hardly able to run over this field at a more rapid rate than is being done. It is such an astonishing emancipation that we can hardly realize it.

There is one point especially with reference to children that we ought to be grateful for, and that is the obliteration of a definite age for pneumonia. Probably there has been no greater factor in the mortality of pneumonia in children than the acceptance of a vague, indefinite age limit. Many physicians hold the opinion that infants below a certain age can not contract pneumonia. For instance, that a child about three years of age can not be the subject of croupous pneumonia, and that therefore all the diseases were considered either catarrhal or so-called bronchopneumonia. The removal of that by the etiology of the disease, as explained here to-day, will be the most potent factor in the recognition and alleviation of this disease. I have seen typical croupous pneumonia in infants at all ages. I do not exclude any. Their liability to it is lessened by maturity.

In the peculiarities of pneumonia as illustrating the cause by the pneumococcus it is best seen in children. The recognition can not be made if we depend upon the rusty-colored sputa. They swallow it and do not expectorate it.

In regard to immunity as secured by the introduction of the antipneumotoxin, the first law of vaccination is, that if you once have immunity you almost always have it. If we treat hydrophobia by Pasteur's method, and immunity is not secured, it is the best evidence in my opinion that we are not dealing with the known cause of the disease.

The paper read by Dr. Lewis is a resumé of the subject past and present, and looks a long way into the future.

In regard to mortality in the days when venesection was the fashion, it must be remembered that the mortality from croupous pneumonia in medieval times was from thirty-two to forty-two per cent. In the Massachusetts General Hospital, during a period at which bleeding, calomel, and antimony were the treatment, and in England, it was ten per cent. The mortality under no definite treatment, but any treatment which the physician chose to apply, that aimed at no particular part, was eighteen per cent. We can not therefore ridicule the idea of bleeding. By bleeding we are doing the very thing which the doctors desire to

do with other remedies, namely, to lessen the strain upon the right heart, which I do not believe can be done in any other way than by inviting blood from it and not requiring it to push it.

DR. MARVIN (closing the discussion): I would like to say a few words about the most excellent paper of Dr. Lewis. While he had a great deal in it that I can emphatically indorse, he left out a few points that I think are important. First, I believe that in pneumonia buccal and intestinal antisepsis never does harm, but may do great good. If the mouth, as we know, is the local habitat of the specific germ, why not keep it clean? You add comfort to the patient. You certainly do great good if you have a good mouth and a clean intestinal tract. I use water internally and externally. I know that poultices seem to be indicated, but as commonly made they are my pet abomination. The moving and turning and twisting of the patient defeat the very object you have in view in keeping the patient absolutely quiet on the flat of his back. A poultice is of no earthly use after it is cold. I have a man to make his own poultices. I simply apply cotton batting and oiled silk over it, and the patient will generate heat or moisture enough to moiston his own poultice. In the next place I give coffee all the way through. I believe in all infectious diseases coffee is one of the most important and capital stimulants we can give. I also advocate chewing gum, and not tobacco. I am thoroughly opposed to that method of treatment in vogue in the East, the so-called trinity pill—aconite, digitalis, and strychnia. I leave off aconite and digitalis. I believe in strychnia. It seems to me we have a trinity to look at of a different kind—heat, fever (pyrexia), heart failure, and we may add respiratory disturbance. The greatest of these is the heart, ninety per cent of adults dying of heart failure. Strychnia, acting through the nerve centers, does more good than any thing else.

One word in regard to digitalis. I have never seen, in twenty years' practice, digitalis do any good as a heart stimulant, except where there was valvular trouble. In valvular trouble we have a fair agent in digitalis. In cases of croupous pneumonia, with a solidified lobe of the lung, with the right heart overdistended, with slight muscular development, the right heart pumping quick, I give nitroglycerine frequently and at short intervals. I give it every twenty or thirty minutes hypodermically.

NEURALGIA.

By Curran Pope, M. D.
Louisville, Ky.

Nothing drives a patient to a physician quicker than pain, and probably there are few who do not at one time or another suffer from this symptom. This disease, whose dominant symptom is pain, is a common one, and for that reason should receive the most critical attention.

Neuralgia is a functional neurosis characterized by pain, varying in degree, localized in particular nerve trunks, and not accompanied by fever.

The classification of neuralgias is unsatisfactory, but they may be roughly divided into two great divisions, as follows:

1. Regional neuralgias, as facial, intercostal or visceral; and

2. Symptomatic neuralgias, (*a*) of a general condition, such as rheumatism, gout, anemia, scrofula, epilepsy, malaria, alcohol, lead, and narcotics; (*b*) of a local condition, as from liver, stomach, bladder, uterus, ovaries, etc.

This classification does not permit of rigidly placing the disease under any of its heads, for a facial neuralgia may not only fall under the head of a regional neuralgia, but may have as a causative agent anemia, and a gastric disturbance as a local cause. A classification is of assistance, but each and every case can not be rigidly made to fit the above rough schedule.

Of the causes of neuralgia we have three classes to consider: (1) Predisposing; (2) modifying; (3) exciting. In the category of the first a hereditary nervous condition is by far

the greatest. It matters not whether neurasthenia, epilepsy, insanity, or other diseases lower the nervous resistance, this hereditary condition is more frequently the corner-stone of neuralgia than it is given credit for being. Children born of tuberculous parents frequently escape this scourge, but fall victims to nervous disease, and especially neuralgia, with extreme readiness.

These persons as a rule are nervous, easily worried, and do not sleep well. Age brings its afflictions, and middle life is especially the period in which neuralgia exists. At this time the rich dissipate, women are burdened with the rearing of families, and men endeavor to accomplish what their insatiate god, ambition, demands, weakening their vital and nervous stability. And to what end?

> "The boast of heraldry, the pomp of power, and all that wealth or beauty e'er gave,
> Await alike the inevitable hour; the paths of glory lead but to the grave."

In the second or modifying class the toxic agencies of rheumatism, gout, alcohol, malaria, and leuctic disease, over-fatigue, cold and dampness add another burden to the already predisposed sufferer.

The third class of exciting causes are numerous and are principally made up of irritations arising from the eye, nose, mouth, uterus, and from emotions acting either directly or reflexly. Especially of late years has the eye been the subject of study in relation to neuralgia, and justly so.

I am, however, firm in the belief that the existing idea that when these local irritations are removed the case will get well is a fallacy fraught with discomfort to the patient and loss of reputation to the physician. So often is it the case that patients have glasses accurately and scientifically fitted for neuralgia without relief, not that the glasses are not necessary, for they are, but because the physician has forgotten the many underlying conditions sketched above.

Thus, take a case which by hereditary entailments has a weakened nervous constitution, suffers from several attacks of rheumatism or malaria, and later adds such an exciting cause as ophthalmic irritation followed by neuralgia, does it seem in reason and common sense to be sufficient to remove the local cause? To my mind it does not. There is no question but what the exciting cause must be removed and the modifying influences corrected. But we should not stop here. Toughen the general and nervous constitution until as far as possible even the hereditary condition is wiped out or held in abeyance. Let us, then, remember that local therapy can not do for general nor general for local therapy, but that both must work hand in hand for the cure of the disease.

The symptoms of neuralgia are well known. The chief and prominent one is pain, and it is for the relief of this that patients seek medical advice. It is usually sharp or darting, but its range is considerable. It may be simply a dull, burning pain, or boring and stabbing, like "a needle in the eye," as one case expressed it. It usually commences in a certain nerve, and either remains limited to this nerve or it may diffuse into other regions. Especially is this true of the facial varieties. The pain may recur periodically, and is often worse at night. It may last for days, never ceasing, and having from time to time severe exacerbations. Tender points in the majority of cases are found at the emergence of the nerves from bony canals or fibrous sheaths. Occasionally trophic and vaso-motor symptoms occur, and the writer has at present under treatment a case that suffers from daily attacks, each of which are preceded by a local sweating on a bald spot upon the head.

The symptoms are those of a "nervous" discharge from the sensory nerve cells brought about by one or more causes acting singly or together, producing as its resultant pain, whether the cause be an obliterating arteritis, as in tic douloureux or the diathetic poison of gout or rheumatism.

Diagnosis should be carefully made. Thorough inquiry into the patient's antecedents, his mode of life, and the diseases he has suffered from should be made a part of every examination. Organic diseases must be carefully excluded, and diathetic and toxic conditions diligently sought for. Present physical and nervous impairment, the condition of the reflexes, and those organs that are the great centers for the production of reflex disorders should be subjected to careful inquiry.

Every method of precision in diagnosis should be used. The urine must be examined, and the blood analyzed for its percentage of hæmaglobin and for its corpuscular richness by the method of Ehrlich. If necessary look to the sputa. No stone should be left unturned. Many cases that could be relieved are frequently through negligence of these precautions allowed to suffer for years. Dana truly says that neuralgia remains as long as its cause is not removed, and it behooves us to search.

Treatment. We have two points in view in the treatment of this disease, (1) to relieve the pain, (2) to prevent its return.

This may be accomplished in the majority of cases by treatment: (1) General treatment, having for its object the removal of the underlying conditions and the toning of the unstable nervous system; (2) local treatment of the nerve, having for its object the relief of the local pain.

The removal of reflex irritative conditions should be our first object. The eyes must be carefully examined for errors in refraction and muscular insufficiencies, then the nose, stomach, liver, and other organs subjected to critical inquiry.

Hygiene, diet, and exercise next demand our attention. Every case must stand on its own merits, and the physician soon learns that "one man's meat is another man's poison."

Fresh air is one of the most powerful tonics we have, and should be taken *ad libitum* by neuralgics. In winter I frequently advise sitting in the sun when one can't get out, and

in the summer sitting under the trees is productive of much good.

The nerves of the face are oftenest affected, hence the unrestrained play of passions is detrimental to these sufferers, while their restraint in proper bounds begets an inhibition that is favorable for the enlargement of the margin of nerve force. The excitement attendant upon the reading of highly-spiced and trashy novels is prejudicial. Adults, as well as children, should lead regular lives, remembering those well-known lines which I paraphrase:

> "Early to bed and late to rise
> Gives nutrition to brain and nerves likewise."

I do not believe in the use of sedatives and narcotics, except under pressure, but endeavor to imbue my patients with the idea that those who have suffered in health must, to be well again, earn health as a reward for the following out of a physiological life, and that any thing that is of value is never in this life attained without labor or sacrifice of some sort. An evening party, when protracted, as they usually are, with all its incidental excitements, predisposes by its draft on an already narrow margin of nerve force, to an attack the next day. Alcohol, tobacco, and a late supper, a powerful trinity, has in one of my cases caused an attack of suffering that baffles description, and each and all of these factors, suffice it to say, are to be or should be avoided or indulged in moderately by those who suffer pain.

If smoking can not be given up, the amount must be reduced and limited to the forepart of the day or immediately after eating. Diet is important, and when we remember that neuralgia is essentially a disease of malnutrition of nerve elements the necessity for a full and rich diet becomes apparent. Nerve substance is made up of the richest of animal principles (phosphorized oleo-albumen); hence the need of systematized nutrition. Each case should be weighed from time to time and diet made to correspond with inci-

dental changes in weight. Perfect trituration of food by slow and careful mastication is to be demanded of each case.

In some cases the use of a light bouillon and a rest of ten minutes before eating greatly assists the digestive process and increases the appetite and capacity for food. The diet should consist of full meals containing fats, butter, cream, red meats, fish, eggs, vegetables (except slaw, cabbage, beets, asparagus, cucumbers, and rhubarb), fruits, claret, or some preparation of malt. If one has scruples concerning liquors of any kind we may use maltine with peptones. Exercise should be in the open air and governed by the physical and nervous condition of the patient. Exercise gives the nerve centers an education by a variety of difficult co-ordinated movements over which it trains these centers to preside. It has a general fortifying and strengthening effect upon the nerve centers, the peripheral nerves, and muscular system, and is a "great fly-wheel" for steadying and calming the hypersensitive nerve centers. As in hygiene and diet, exercise requires careful thought and study for its intelligent application. I can not see the benefit that results from forbidding esthetic, artistic, or literary pleasures that are agreeable to this class of patients, but rather believe that they are beneficial if indulged in with moderation.

Having, by removal of reflex irritation and humoral conditions, and by the above-mentioned conjoint assistance of exercise, hygiene, and dietetic laws, placed our patient in the best possible position for recovery, we may proceed to attack the disease by systematic treatment both generally and locally. This is best brought about by a combination of electro-therapeutics, hydro-therapeutics, and tonics.

General Treatment. Electro-therapeutics: Two methods have in my hands yielded me excellent results: (1) Static insulation and breeze; (2) electric bath.

Static Electricity. Nearly every case I have seen needs constitutional treatment, and to secure a powerful tonic

sedative I use negative insulation from three to ten minutes, followed by a positive breeze to the painful nerve. The results are often startling. Patients that were before physically irritable and excessively nervous become quiet and often drowsy. The application is very pleasant, and patients usually request a longer seance.

Where the neuralgia is limited to the limbs or trunk a mild positive direct breeze or spark gives excellent results. Lately I have used a very convenient apparatus for limiting the breeze to the various parts of the body. It is made by Messrs. Waite & Bartlett, of New York, and can be used both for direct and indirect breeze. The positive head breeze may also be used instead of the direct positive breeze.

The pleasantness of these applications render their use easy in the most delicate cases.

Experience in the use of statical electricity strengthens my belief that in it we have an agent capable of profoundly affecting the nutrition of the nerves. That it quiets disturbed nerve processes, is a powerful tonic and sedative, is daily exemplified in the hands of those who use it in a rational manner. I am a firm believer in the differences of polar action, and count this among one of the most important advances of late in electro-therapeutics.

Electric Bath. Of the appliances which at present enable us to administer this form of the electric current, I would like to say in passing that they are defective. I have lately had made a new and improved tub and connections that I believe will overcome many existing defects.

Of its action there are two important points, (*a*) the thermal action of the water, and (*b*) the action of the galvanic current. Large currents must be used and can be used without the slightest discomfort to the patient, who experiences only the "pleasing pricking" of the cutaneous surface. The electric douche (faradic) may be used after the above bath.

Hydro-therapeutics. As Baruch and others have shown, a hot-air bath at 130 to 150 degrees (in which the head is exposed and covered with a wet turban or coil cap), and in which the patient remains until perspiration commences, followed by gradually lowered douches, relieves the pain, improves the circulation, develops and strengthens the nervous and muscular organization, toughens the integument, and acts as a preventive to the frequent recurrence of debilitating conditions. I have verified this frequently.

After one or two such treatments patients are more than anxious for a repetition of it, and some absolutely insist upon its frequent use. A rest of five or ten minutes followed by a short walk enhances the effect.

Medicinal Treatment. From those now well-known drugs, antipyrine, antifebrine, antikamnia, and others of the coal-tar derivatives, I have never done more than temporarily relieve or annul the pain. They are in no sense of the word curative, and in many cases are positively injurious.

Against morphine I protest earnestly either for temporary or constant use. Gowers says in this connection that "caution should be used to prevent the dangerous morphinism, most cases of which have been set up by the use of this drug for neuralgia." Thus the servant becomes the master, the patient the slave.

Of the general sedatives, if these are necessary, Indian hemp, in one-fourth to one-grain doses where pains are sudden, and aconite are the two drugs I have used with some satisfaction. Tonics are always needed and must be given for two classes of cases, one in which actual anemia exists, and the other in which there is no anemia. For the first I am in the habit of using the following tablet varied by such additions as the individual case demands:

℞ Ferri carb. sacch., ... grs. xij;
Ac. arsenious, ... gr. $\frac{1}{30}$.

M. Ft. tab. No. 1. Sig: *Ter in die.*

To this may be added aconitia $\frac{1}{200}$ or $\frac{1}{100}$, or Indian hemp one fourth to one half or one grain.

The physician must be governed in the use of tonics by what the examination of the blood has shown. In the other class of cases the use of quinine, arsenic, strychnia, and phosphorus is indicated, that is, nervine instead of hematic tonics. A good combination is:

℞ Ac. arsenious, ... $\frac{1}{50}$;
Strych. sulph., ... $\frac{1}{60}$;
Phosphorus, ... $\frac{1}{100}$.

M. Ft. tab. No. 1. After meals, with quinine sulphate, grs. 5, on retiring.

There are certain cases that present causal factors, and these are to be judiciously met by treatment. Gouty and rheumatic cases need no further treatment than the hot-air bath and douches, except perhaps the drinking of larger quantities of plain, lithiated or alkaline waters.

There is one procedure that has yielded in my hands such results that it shall justify me in a continuance of its use, viz., Chapman's spinal ice and hot-water bags. I have seen cases suffering from attacks of acute pain, after the application of the bags, fall to sleep, awaken refreshed and free from suffering. As to its effecting a permanent cure I am not prepared to say as yet, but as a substitute for that little pest, the hypodermic syringe, it is very efficacious.

No locking up of the secretions, no nausea, constipation, and other attendant evils follow in its wake. That ice to the spine is not disagreeable the writer has more than once tested experimentally on his own person, and has only heard those complain who have not used or are afraid to use it. It can be applied in one of four ways: (1) As a spinal hot-water bag ten inches to the cervico-dorsal region continually until the pain is relieved. Temperature 110 to 112 degrees F. Great care should be exercised that it does not slip up. (2) A lumbar six-inch ice bag to occiput. (3) Lumbar ice bag

to lower third of spinal cord. (4) A combination of the last two in the simultaneous use of both.

Dr. John Chapman, of Paris, France, in a personal conversation with the writer, stated that the results obtained by him were surprising, and since then I have on many occasions verified to my satisfaction the truth of his statements. Like all other therapeutic agents success in their use requires judgment. Another point of value is that other treatment may be carried on without affecting their use. I have even relieved in some cases the pain of locomotor ataxia.

Local Treatment. While general treatment is being adopted local therapy, having for its object the lessening and arrest of the local pain, may be adopted. Hot water, liniments, and menthol may be used, but their benefit is evanescent. Of these local methods we may use the method of Corning. This consists of temporarily anesthetizing the nerve with cocaine. To accomplish this there are two methods, one used by Dr. Corning, and the other his method modified by me. I shall only describe the latter. The patient, sitting comfortably in a chair, locates the sensitive point, which is verified by a digital examination of the physician. The superficial skin is deadened by cocaine and then subjected to acupuncture by a special instrument. This is painless. Then by means of Peterson's cataphoretic electrode cocaine is introduced into the region through the skin by the electric current, varying from three to ten milliamperes. The current is allowed to pass five to ten minutes. Then a piece of wire gauze trimmed to fit the spot is placed over it and the T block applied. The wire gauze is gently pressed upon the anesthetic spot and kept there from fifteen to thirty minutes. When the gauze is removed the flesh presents a lattice appearance, which soon passes away, leaving no marks or defacement.

My modification of Dr. Corning's method consists in the use of the cataphoretic electrode, he using a simple sponge electrode.

If the neuralgia is superficial, I have used the thermic hammer with some success. The local use of the galvanic current to the painful parts acts as a direct sedative. It should be given in doses of from a half to five milliamperes without break of the current. When this is properly given there is absolutely no pain, shock, or even discomfort, simply a sensation of warmth, a slight tingling, and here it stops.

I desire to dwell somewhat on this fact, for there seems to exist in the minds of some of the profession, and especially among the laity, that the uses of electricity are synonymous with shock, pain, discomfort or torture. Nothing is further from the truth, and it is to be regretted that such ideas exist, for it debars many a sufferer from obtaining relief.

In the same way local faradization is of great value. I have not had sufficient experience as yet with Rockwell's new depolarizing electrode to speak of its value, nor can I express an opinion of the new invention of Engleman, by means of which we get a faradic current with 150,000 vibrations a minute. They are founded on good, sound principles, and will receive the trial they should have. The therapeutic field is full of resources for the neuralgic, and out of its plenteous abundance we must select those general hygienic, medicinal, electro- and hydro-therapeutical treatments, such as the case demands, and combine this with the needed local nerve treatment. Individualize your cases and persevere in the above-outlined treatment and many successes will mark your work.

DISCUSSION.

Dr. T. B. Greenley, Orel: There is one point in reference to the local treatment of neuralgia that I would like to add, and that is the use of dry cups. Wherever you can apply a dry cup over the local seat of pain, whether in rheumatalgia or neuralgia, you can do a good deal toward the relief of the patient's suffering. By continuing that three or four times a day, if the pain is

persistent, you can overcome it quicker than by any other means. I have had better success in treating intercostal pain, or pain in the back, when I have resorted to this than with any thing else. I have got patients out of bed that could not possibly get out themselves by drawing thoroughly with a cup.

DR. J. B. MARVIN, Louisville: There is much in the paper to commend. I would criticise the opening sentence, if I understood it correctly, that neuralgia is a "functional neurosis." These functional troubles are the *bête noir* of the profession. Neuralgia or rheumatism (meaning thereby pain), hysteria, and malaria are the trinity by which we so frequently cloak our ignorance. Can a functional thing hurt? Can it cause an ache or a pain? We say that a hollow tooth will ache like the mischief. It is not the hollow tooth that aches at all.

The essayist made a mistake in designating neuralgias dependent upon a variety of causes, as anemia and certain toxic agents, syphilis, malaria, gout, reflex causes, and neuritis. We should reserve for the latter class those cases in which there is some demonstrable lesion in the nerve trunk or nerve center. The greater the effort to narrow down this class of cases of functional neurotic troubles, the better will be our progress.

Another criticism is this: He interjected a remark which showed the drift of his mind somewhat in a direction backward; it was at variance with the purpose of the paper, namely, that a child with a tuberculous parent who did not develop tubercle would have neuralgia. We do not believe tuberculosis is hereditary.

The other point was the great number of his therapeutic resources as demonstrating one fact which must press itself home to every practitioner, namely, that wherever we have any trouble in which we employ such a multiplicity of agents we have not got the right agent after all.

DR. MARTIN F. COOMES, Louisville: The paper gives me an opportunity of saying that too many spectacles are put upon people in this country by eye doctors. We all know that a bad optical defect may cause a neuralgia, but we do not meet with such cases every day. Two or three modern writers have gone to an extreme and have claimed that all these headaches can be relieved either by the adjustment of spectacles or by a partial tenotomy. I have found a few headaches cured by the use of

spectacles. I have an ideal case now in my mind's eye in the person of a young lady who is hysterically neurotic. She is partially blind with severe headaches. She was sent to me by a physician who insisted that the headache could be cured by the adjustment of glasses. Her vision was in such a condition that I could not adjust the glasses. Glasses have not been adjusted, and her headache is gone. This case simply goes to prove this point, that if I had adjusted glasses in her case the claim would have been laid to the spectacles as a cure. The girl has gotten well, but she has an optical defect, maybe a hyperopia, or possibly astigmatism. I do not believe the optical defect had any thing to do with the headache. From the cases I have seen in practice I am convinced that the cases that result from headache are much fewer than we are led to believe. People have headaches from various causes, but I am sure that in quite a number of cases they are not produced by optical defects, nor will the application or adjustment of spectacles cure all these cases, and the sooner the men who are engaged in this work realize this fact the better it will be for all.

Neuralgias about the eye, as the author states, have a general cause, often reflex, occurring from bad teeth or from the involvement of the fifth nerve.

Dr. John A. Larrabee, Louisville: In regard to neuralgia, I think the author will agree with me that two thirds of his cases are among females, and very many of them are among young females, and most of them among society females. The modern society girl is a living curiosity. She goes to an afternoon party, goes to a ball at night, and then perhaps the next night to a progressive euchre party, and progressive euchre with females I believe is a synonym for progressive neurasthenia. Look at her at ten o'clock the next day. She gets up from a sea of dreams, with a bandage around her head and over her eyes, looking like a picture of Justice and complaining of neuralgia. Hysteria with her is a natural consequence; in fact, I may say it is pastime, and headache is a consequence. We have heard a good deal about the condition of the hemoglobin in the blood corpuscle. What about the nerve element itself, which being depleted, shriveled, changes in form and structure, as observed in experiments under the microscope? These are the causes of increasing neuralgia among females, and all the treatment that can be

applied with Franklin's maxim added to it will fail to cure these cases as long as such drafts on the bank of health are made.

DR. CURRAN POPE, Louisville: I would like to say in answer to Dr. Greenley that I have used cups with a considerable degree of success in neuralgia, and I have used them with success especially in sciatic neuralgia as differentiated from sciatic neuritis. That leads me to the points Dr. Marvin made. It would have afforded me great pleasure to have entered into the differential diagnosis, but with me and with most neurologists a neuritis is a fixed disease. It is not a neuralgia. It has its definite, well-recognized symptoms, and therefore the only bearing that neuritis could have upon neuralgia is in differential diagnosis.

I am sorry that my meaning in some instances was a little cloudy or misconstrued with reference to tubercular children or the children of tuberculous parents. I recognize very well with Dr. Marvin that a person does not inherit the disease. He may inherit a proclivity to a certain disease, and the idea that I endeavored to convey was this, that children springing from tuberculous parents, whose procreative powers for healthy children are lessened, are defective nutritionally and form a favorable soil upon which functional nervous disease can be grafted. Dr. Marvin states that the therapeutic field here presented is evidence that few remedies are known as successful, and yet he allows that painful neuroses are the *bête noir* of the profession; he confesses that we are confronted by a large aggregation of troubles, to treat which would require us to go over an extensive therapeutic field. If we take into consideration the number of these cases presenting different phases, it will be allowed that the physician is better prepared to cope with them who has at his command large therapeutic resources than he who simply gives drugs according to the older methods.

The question of treating neuralgia in a society woman, as Dr. Larrabee has pictured her, is a trying one. It would require a social revolution to treat these cases. While we may do a great deal to improve their general condition, the root of the trouble lies in the social condition in which she lives.

DR. J. B. MARVIN, Louisville: The author misapprehended my criticism. I was making this point, that we may have neuralgias, as he defines it, dependent upon malaria, syphilis, gout,

or rheumatism. Now, to label these neuralgia and treat them as such is not the proper thing. That is the *bête noir*, calling the symptom the thing, and classifying the thing as a functional trouble. If I find gout, syphilis or rheumatism, I treat it, and not simply the pain arising from it.

DR. POPE: I had mentioned in my therapeutics the treatment of the underlying diathetic conditions. These must be looked after as well as the treatment of the local trouble.

APPENDICITIS; PATHOLOGY AND VARIETIES.

By A. Morgan Cartledge, M. D.
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It has been but a few years since our knowledge of the pathologic changes occurring in the small anatomical structure known as the appendix ceci vermiformis could be compressed into half a page of an ordinary text-book of surgery. Indeed the knowledge of every phase of the subject of appendicitis, including pathology, clinical varieties, etiology, symptomatology, terminations, and treatment, was usually assigned less than a page in any treatise making mention of this disease. As a matter of strange historic interest we have only to go some three decades back to find that previous to that time the vermiform appendix was never charged with being a disease-producing factor except by two or three observers, and the views of these never gained recognition.

Probably the most painstaking and acute observer of this or any previous century was Dr. John Hughes Bennett, the great clinician and pathologist of Edinburgh. In commenting upon a case of peritonitis occurring in a young female, and which was attributed to rupture of Graafian follicles into the peritoneum (although the carefully detailed clinical history and *post-mortem* as read by the knowledge of more recent pathology leaves little doubt but that it was a case of the early rupture of a tubal pregnancy), this great man says: "In such cases (peritonitis) the inspection should never be concluded without a careful examination of the appendix vermiformis, where I have seen minute perforation very apt to escape notice. This part, besides being exposed to all the

ordinary diseases of texture, is especially liable to have impacted in it grains of wheat, barley, or other kinds of seed, cherry stones, pins, and a variety of foreign bodies which pass readily through the other portions of the intestines, but which in the appendix may give rise to ulceration, perforation, and fatal peritonitis." This was written thirty-five years ago, and while we see in it a tendency to overestimate the etiological significance of such foreign bodies as seeds, cherry stones, etc., we also determine that whenever observers in any age did, as Bennett did, seek for the explanation of peritonitis by *post-mortems*, they found the vermiform appendix a very pronounced etiologic factor.

Fifteen years after Bennett indicated so forcibly the part the appendix played as a causative factor in acute peritonitis, the leading English author in his text-book of medicine says that "acute inflammation of the peritoneum is a serious disease accompanied with pain and swelling of the abdomen and severe symptomatic fever. It may attack individuals of all ages and of every rank in life, though it is perhaps seen most often among the poor, since cold and damp will induce it in systems enfeebled by bad living." He then goes on to say that in the year 1864 there were seventeen hundred and thirty-six deaths recorded as having occurred from peritonitis in England, and without once making mention of the vermiform appendix enumerates as the principal causes of acute peritonitis cold and damp, mechanical violence, perforation of the stomach and intestine, rupture of the urinary bladder, bursting of hepatic abscess, pelvic cellulitis, and contamination of the blood by morbid poisons, especially perhaps by that of erysipelas.

When the above is the teaching of a text-book used by many physicians in active practice at the present time, is it at all surprising how slow the profession is to adopt the seemingly radical views and radical preventive and curative treatment of peritonitis based on the new pathology? The

study of this disease is one alike of vital interest to the physician and surgeon. Instead of being a threadbare one, as the long and numerous articles in the journals might make one believe from a superficial view of the question, we have just commenced to realize its importance and clear the pathologic field. Modern surgery through operations has set aright the cause of this fearful disease, peritonitis.

A few years since, if the appendix was mentioned as being diseased, it was the custom to refer to it as having become so by extension from contiguous structures, especially the cecum. The reverse has been shown to be true. From our modern knowledge of the pathologic changes occurring in the appendix, and the consequence of such disease to other abdominal structures, we are prepared to say appendicitis is a very common malady; that it presents several distinct clinical types; it may be the most chronic and again the most acute of diseases; that initial attacks which often seem to terminate in resolution leave pathologic changes in the appendix which ultimately lead to the most serious consequences. Finally, acute peritonitis is more often caused by it than by any other intra-abdominal lesion.

The Pathology. The pathology of a disease must ever be the key-note to a rational appreciation of its diagnosis and successful treatment. In order to intelligently follow the pathologic changes which occur in the appendix it is proper that we reflect for a moment upon its anatomy and histology. Mr. Treves' dissections, now confirmed by all anatomists, conclusively prove that the cecum and appendix are completely surrounded by peritoneum, hence all primary pathologic changes originating in these structures are essentially intra-peritoneal. Moreover, the cecum and its accompanying appendix are susceptible of a considerable latitude of motion, and display, probably as a result of this, distinct variations as to location. The appendix proper varies from three to eight inches in length; when attenuated by traction from

adherence to some distant organ, as the uterus or bladder, it may even exceed the maximum given; certainly I have observed two appendices eight inches long, one of which was adherent to the right uterine horn and the other free. The appendix is supported by a well-defined mesentery or meso-appendix of very variable length, or, more correctly speaking, breadth. The extent of this peritoneal reflection determines the range of mobility of the appendix, and is (I am satisfied) a decided predisposing cause of disease in this structure. The appendix is slightly curved upon itself, the greatest curvature being near the extremity or tip, and is the result of the peritoneal fold which is reflected from its extremity passing upward to join the general trend and direction of the mesentery. A larger percentage of appendices are found drawn up behind the cecum in normal dissections than are found when operating for disease. Whether the large number found below the head of the cecum in the latter condition is the result of downward displacement by disease, or was original and the predisposing cause of the disease, has not yet been satisfactorily explained. So far as I have been able to judge, the length of the appendix independent of its mesentery plays no part in the production of appendicitis. The coats of the appendix are a fraction thicker than the similar coats of the cecum; its proportion of solitary glands or lymphoid tissue is relatively greater. The blood supply of the appendix is twofold and of great pathologic importance. That portion of the appendix nearest the cecum receives some nourishment from the general blood supply of the cecum, viz., the vasa intestini tenuis, but the distal four fifths of the organ is dependent for blood upon the single artery which traces its way between the folds of its mesentery, giving out minute branches which supply the various coats. This artery, at times not so small as to be despised, is generally described as being one of several branches given off from a vessel formed by inosculation of the inferior terminal

branch of the ileo-colic artery and the vasa intestini tenuis. Well-injected subjects will demonstrate that the branch to the appendix is terminal, and its size, as well as the facts gained by following it toward its origin, leads to the conclusion that it is the termination of the inferior branch of the ileo-colic or the main branch formed by inosculation with the vasa intestini tenuis. It should be designated the appendicular artery. Obliteration of this vessel either by artero-thrombosis or by twisting, should the appendix be rotated upon its axis, will inevitably result in ischemic necrosis of the distal parts of the organ. The nerve supply of the appendix is derived from the great abdominal sympathetic system through the superior mesenteric plexus. The lymphatic system is not different from other intestinal tissue, viz., a deep or superficial set of vessels terminating in glands situated between the mesentery. As is well known, the mesenteric glands or lymphatic are very abundant near the ileo-cecal juncture, second in this respect only to the large number found along the course of the duodenum.

The diameter of the appendix is one third of an inch, tapering to a point in its distal fourth; the remainder of its length presents no variation in diameter at different parts.

The cecal opening into the appendix or orifice is closed first as the result of contraction of the circular muscle fibers, and second by the folds of mucous membrane of the cecum which cover it over.

A well-defined valvular arrangement, as suggested by Gerlach, has not been verified by other observers. As far as observation goes it seems doubtful if fecal matter ever enters a normal appendix. The author thinks we have abundant explanation for this deduction in the probable phenomena of fecal circulation through the cecum. The stimulus to peristalsis and the corresponding muscular response which expends itself upon the ileum and propels the intestinal contents downward must be more or less arrested at the

ileo-cecal valve. The fecal freight is dumped, as it were, into the receptacle of the large bowel, the cecum. Here a new force operating in a different direction is necessary to start it on its way. This force, owing to the more fixed position of the cecum and ascending colon, is one that must raise the large and now more consistent mass in a nearly perpendicular direction. This renewed peristalsis must originate at the most dependent part of the cecum and operate in an upward direction. Thus it is that the only force which could possibly tend to carry any of the fecal contents into the appendix would be the simple weight of the same when the cecum was in a passive state. Every effort of peristalsis inclines to carry away from the appendix the fecal matter. Impactions in the cecum by pressure tend to force feces into the appendix; also such impactions, by producing textural changes in the cecum mucosa, might destroy the normal protecting conditions of the appendicular orifice and render it easily pervious.

Seemingly of pathologic interest in connection with appendicitis is the marked difference in the susceptibility of the two sexes to this affection. The disease occurs four times in males to once in females. Anatomical differences do not account for this in a satisfactory way. The structure in the two sexes seems identical, with the exception of the additional blood supply in the female through the appendiculo-ovarian ligament of Clado. It seems correct to suppose that this explains to a certain extent the greater immunity enjoyed by the female. However, as Clado's ligament is not a constant structure, some observers claiming that it only exists in about one in ten females, this is not sufficient to account for the marked difference.

My observations, confirmed by others, that external violence from falls, blows, and contortions of the trunk may cause rotation of the appendix and twisting of its mesentery, lead to another explanation of the frequency of appendicular

disease in males, viz., *the occupation of the two sexes.* That torsion alone by cutting off the blood supply is a cause of destructive changes in the appendix there can be no doubt. One such case, operated upon a few hours after the accident by Dr. J. S. Chenoweth, demonstrated the twisted appendix perfectly. I have seen undoubted evidence of such a condition in cases operated upon after infection and perforation.

The gross or macroscopic appearance found in the appendix, the seat of disease, may be described as follows:

First: (*a*) Swollen, tense, congested, dark red or mottled in color.

(*b*) Swollen, tense, discolored, fibrinous exudates.

(*c*) The above with cobweb adhesions in relapsing cases.

(*d*) Perforated and necrotic.

(*e*) Distal distension very marked, usually the result of stricture from prior attacks; such distal accumulations are at first cystic, later infected, purulent, and perforative.

The appearance here described refers to the appendix proper; surrounding peritoneal changes which may be present had best be studied in the light of sequelæ.

What are the first conditions or changes that take place and make possible the subsequent pathologic history of appendicitis? Here it is proper to remark that the bacillus coli communis is a normal resident of the appendicular mucus, and that numerous observers have shown this bacteria to be the organism most often engaged in the production of suppurative and fibrinous inflammations in intestinal and peritoneal tissue. The researches of Fowler and others also demonstrate that the infection of the appendix is most often a mixed one.

Given ever-present bacteria capable of pathogenic properties, and a lesion or point of lessened resistance, and we have all that is required to set into activity a pathologic process.

The *locus minoris resistentiæ* is to be found in (*a*) trauma to the cecal and appendicular mucosa, (*b*) in vascular lesions,

the result of trauma or endarteritis, and (*c*) ulcerative changes due to tuberculosis, and may be syphilis.

Trauma of the cecal and appendicular mucosa may be caused by the presence of enteroliths or foreign bodies, vascular lesions by rotation of appendix, thus partially or completely obliterating its blood supply. Endarteritis, so fatal to the tissues supplied by terminal arteries, evidently applies with great force in the appendix. However, we are not prepared to believe with Fowler that intra-vascular lesions, probably combined with chronic nerve lesion, constitute the chief causes of a *locus minoris resistentiæ*.

Tubercular lesions, the subject of secondary infection, furnish a not inconsiderable number of the cases of appendicitis. Once the infection of an intra-appendicular lesion has taken place, all the conditions for rapid and destructive tissue changes are present, viz., poor drainage facilities, abundance of lymphoid tissue, and a terminal blood supply. The infection of a lesion to the appendicular mucosa, such lesion being the result of impacted enteroliths or tubercular ulceration, will terminate in a suppuration that may empty itself continually through a patulous orifice into the cecum, as does the normal mucous secretion of the appendix. The excretion will contain pus-cells, however, and in no sense should be spoken of or written about as a catarrhal inflammation. These are the cases which furnish the history of so-called chronic or relapsing appendicitis; the explanation of acute exacerbations or relapses is the temporary plugging or obstruction of the communication with the cecum. If such an appendix is undisturbed, one of three results will probably follow:

(*a*) A firmer occlusion will some time take place, and the distal accumulation will by tension propagate and increase the virulency of the infection, and the case will terminate in perforation either with or without surrounding fibrinous protecting exudates, the presence of the latter being dependent

upon the rapidity of the accumulation and the intensity of the microbic infection.

(*b*) Such a chronic suppurative inflammation of the appendicular mucosa may by lymphatic absorption or direct extension lead to an endarteritis obliterans of the appendicular blood supply, and the appendix proper be reduced to the condition of inert and dead tissue to be rapidly preyed upon by ever-present pathogenic and saprophytic bacteria.

(*c*) Under favorable local and constitutional conditions such a chronic or acute suppurative inflammation discharging into the cecum may terminate in resolution.

What are the tissue changes found when such a lesion has healed? Does it modify the future function of the appendix? An inflammation of the kind we have described must produce lesions of the appendix walls of greater or lesser extent; such lesions, if they heal, must do so in conformity to the laws governing the regeneration of tissue breaches elsewhere in the body, viz., by the reproduction of new tissue from preexisting or marginal cells; such new tissue formed under such pathologic conditions can never rise higher in the histologic scale than scar tissue. Hence a cicatrix with all the contractile tendency of cicatricial tissue is the result.

In this sequel of a healed or resolved appendicitis we have laid the foundation for future disease in the appendix years after, as in the stricture of the urethra first giving trouble many years following the initial attack of gonorrhea. Such a stricture of the appendicular lumen often contracts so as to render it impossible for the normal mucous secretion to discharge into the cecum. The result is sometimes a mucous retention cyst, but more frequently, from the favorable conditions for infection, a suppurative inflammation terminating in perforation. Probably such cases furnish one of the slow varieties of appendicitis, with little pain and ample protecting adhesions or exudates. Thus we see that appendicitis with exactly the same method of origination may be very

acute, very chronic, or chronic with acute exacerbations (relapsing). There is scarcely a doubt that many cases of chronic suppurative inflammation of the appendix mucosa are never recognized as such. If a temporary occlusion takes place with moderate fever, tenderness, etc., these cases are called catarrhal appendicitis. All suppurative inflammation in mucous tissues is preceded by an exaggeration or stimulation of normal secretion, viz., the catarrhal state. Evidence is everywhere wanting to prove that a purely catarrhal inflammation, if occurring, is competent to produce symptoms that would deserve the name of appendicitis. The cases of chronic or acute suppurative appendicitis discharging into the cecum, and the distal distensions from stenosis following stricture, are the cases that have by mistake been called catarrhal appendicitis.

Twisting or rotation of the appendix probably gives rise to a rapidly acute form of the disease in nearly all cases. The essential pathology is a condition of acute ischemia, the starved district consisting of the appendix becoming rapidly infected.

Obliterating endarteritis is certainly quite often associated with inflammatory disease of the appendix, but we are not prepared to believe with Fowler in his excellent observations on appendicitis, that trophic nerve lesions leading to intravascular changes constitute the most common causative lesions of appendicitis. Rather do we incline to look upon obliterating endarteritis, so commonly observed in the pathology of the disease, as a result of prior changes in the appendicular mucosa.

Fibrinous exudates and peritoneal adhesions around the inflamed appendix are the result most frequently of the passage of the bacillus coli communis through the diseased walls of the appendix to the peritoneum, where the proliferation of lymph is excited. That perforation is not necessary for

the accomplishment of this is evidenced by the fact that such exudations accumulate in large quantities where perforation has not occurred; and again, perforation of an intra-appendicular abscess may occur before the irritation has been prolonged sufficiently for the production of surrounding exudates. The immediate peritoneal changes which ensue in appendicitis vary from the cobweb adhesions which so often attend relapsing appendicitis to the large exudation wall of an extra-appendicular abscess containing a quart of pus. Necrosis may be so rapid and accompanied by such infectious intensity that the peritoneal response partakes of a spreading fire without any effort at conservatism or limitation, or again purulent accumulations from stenosis may render the appendix rapidly tense until it will burst like an overinflated toy balloon, emptying its septic contents upon an unprotected and undefiled peritoneum. A fatal general peritonitis is the consequence.

The terminations of appendicitis may be enumerated as follows:

1. Resolution with a cicatrix which may lead to future trouble.
2. Perforation with circumscribed abscess.
3. Perforation with diffuse septic peritonitis.
4. Chronic suppurative inflammation discharging into the cecum.
5. Diffuse septic peritonitis without perforation from a dead and necrotic appendix.

Again, the abscess cases may terminate in encysted abscess with destruction of the pyogenic bacteria leading to chronic puruloid accumulations. The abscess may rupture into any of the hollow abdominal viscera, or externally in front, or in the loin.

With a slight modification I would suggest a classification of varieties based upon the pathology of the disease,

which I had the honor to present in a paper read before the Southern Surgical and Gynecological Association in November, 1893:

Suppurative, . .	From tuberculosis. From trauma of appendix mucosa, enteroliths, foreign bodies, etc.
Perforative, . .	From ulcerative perforation. From rupture of intra-appendicular abscess. From endarteritis.
Necrotic, ...	From volvulus. From intense bacterial infection.

DETERMINATION FOR OPERATIVE INTERFERENCE IN APPENDICITIS.

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The committee have allotted to me decidedly the most difficult part of this subject to discuss. There are two sides to this question, which is by far the most interesting and important at present before the medical world—important, because we have so much yet to learn about this disease; interesting, because of the wide diversity of opinion as to the best methods of treatment. One set of authorities hold that surgery is uncalled for, while others claim that upon surgery alone depends the salvation of most of these cases.

There is no question in my mind but that appendicitis is always a surgical disease, and that in the vast majority of instances the medical man only complicates the case by his remedies. In every case of suspected trouble with the appendix he should either surrender the case to the surgeon or go hand in hand with him from the initial symptom.

The signs which determine the surgeon when to operate are so general and so variable in individual cases that to lay down any strict rules is impossible; the decision is so rapid and arrived at by the consideration of so many points that it amounts to almost an intuition. In reality, however, it is the result of surgical experience and constant contact with surgical conditions. You can not depend upon the temperature as a guide, nor the pulse; pain alone is not sufficient, nor is the presence or absence of a tumor; tenderness may or may not be present; McBurney's point is not reliable in all cases;

the facial expression by itself is not to be depended upon; rectal touch may or may not be convincing; but when we take into consideration all of these points, along with the age, sex, occupation, and particularly the previous history, we are enabled to make up our minds in the great majority of instances when to operate and when to wait.

It is very difficult to give in detail the process by which these conclusions are arrived at; it is almost always by exclusion and from the consideration of no one symptom, but the whole taken collectively. Many of these cases are perfectly plain, and a decision is made at once, while again, border-line cases are met where we have very little to base a decision upon; but where it is of vital importance to decide, and that at once, there may be but one symptom, pain with tenderness, no fever, pulse normal, no tumor or muscular rigidity, only tenderness over the region of the appendix with pain on movement or coughing; yet this patient, as proven time and again by *post-mortem*, may die, in twenty-four hours from the initial symptom, of perforative appendicitis. If this case should happen to be a female the diagnosis might be doubly difficult, and these cases are the ones where a little hesitation may allow the golden opportunity to pass, and the death is oftentimes laid at the door of typhoid fever, or the certificate signed acute peritonitis.

One of the most trying positions in which the surgeon finds himself is when he is called to a case where a general peritonitis is present with all of the signs of collapse and impending death. Shall he operate and give the patient the one chance in a thousand, or shall he refuse for the sake of surgery? A death after operation leaves a lasting impression in the neighborhood, and Smith, who may be in condition to be saved by operation, refuses because Jones, who lived across the street, died after being cut. This is a point for serious discussion, and one that has come up in my experience more than once. This subject is being discussed by

the laity very extensively just now, and newspaper articles are appearing constantly which conflict with the more advanced ideas of treatment. A case which illustrates this occurred in my practice a few days since, when I proposed an operation in the case of a young lady. A clergyman friend of the family happened in, who gave a note of warning, as he had just read an article in a newspaper which stated that eighty or ninety per cent of these cases recovered without operation; his advice was to get the opinion of some good physician before the operation was allowed. When they saw the gangrenous appendix just on the point of rupturing into the cavity, congratulations were in order that the minister's advice was not followed. Surgery of this kind is in very bad odor with the people; they can see very well the reason for cutting a man's leg off when crushed by a railroad train, but the reason for opening his belly for an attack of colic is hard for them to realize. Hence the great importance of educating them in matters surgical.

In conclusion I will add a few appendicular aphorisms which I hope will cover the subject sufficiently:

First: Appendicitis is always a surgical disease, and the ordinary treatment by opium not only masks the condition, but adds no little to the danger.

Second: The sooner the surgeon sees these cases the better, as a few hours' delay in operating may mean the difference between life and death.

Third: If a case of supposed appendicitis is not well in thirty-six hours after first symptoms appear and the active use of salines, operation should be resorted to as the only safe procedure. Procrastination means more funerals.

Fourth: If in any case doubt exist, operate, as this is the only way to ascertain the exact condition, and the patient should have the benefit of the doubt.

Fifth: If there is a history of one or more former attacks, operate, as there are abundant statistics to prove the great

danger of thinking because a first or second attack did not kill that a third will end as fortunately.

Sixth: The great difficulty in this disease is to make a diagnosis; better operate for a diagnosis than to run the risk of this being cleared up by time, when in the majority of cases it will be too late to save the patient.

Seventh: Remember that the statistics from the standpoint of a physician are of no value, as no one can say positively that any case that recovers under medical treatment was appendicitis or not.

Eighth: Do not forget that the operation *per se* in competent hands is unaccompanied by danger; if no condition requiring it is found, no harm is done.

Ninth: Think twice before operating when general peritonitis is present, remembering, however, that a small per cent of these cases will recover after operation, and that death is certain without interference.

Tenth: Do not forget that a calm often precedes a storm; an apparent subsidence of active symptoms is often followed by rupture of the gangrenous appendix and fatal collapse.

Eleventh: Do not be misled by the location of the pain; occasionally this is remote from the appendicular region and may lead one into error.

Twelfth: The gravest cases often have the fewest symptoms. A man may be following his vocation in the morning and in hopeless collapse before night from a ruptured appendix, with no more signs going before than an ordinary belly-ache.

Thirteenth: Those cases which have a tumor present may be allowed more time than those which have none. Inflamed appendices without this protection of nature are the most dangerous; the greatest care is required in handling the former class to prevent contamination of the general cavity, as pus is nearly always present.

Fourteenth: To repeat—if you are in doubt, operate.

THE TECHNIQUE OF APPENDIXECTOMY.

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Though the conditions under which I make this report may indicate that the question of pathology, diagnosis, and propriety of operative treatment are not my business, yet I may be allowed a word in explanation of the pre-technique. While all the currents and pathways of the pathology of appendicitis are not yet explored to unanimous concurrence, it is settled that the first step in the lesion is invariably the initial phenomena of inflammation, whether physiological or pathological. And though this inflammation may remain physiological (so-called catarrhal appendicitis), it must not be forgotten that we have here the most favorable of all conditions for septic infection. These first steps establish a *locus minoris resistentiæ* favorable for the colonization and propagation with almost inconceivable rapidity of septic bacteria, and this nidus is in the heart of the enemies' country, the camp of the bacilli coli communis (whose *rôle* is certainly important if not exclusive), but over the hill. The danger is much as if one place a ripe apple in the close vicinity of a hornet's nest. The hornets may not attack it, they may bore into it once or twice and seek other pastures, or they may riddle it to ruin. Surely if the apple or appendix could be safely removed at the earliest possible moment, it should be done; but in the case of the appendix at least, even if the operation in skilled hands is practically without mortality, it is not by any means always a feasible step. The question rather is, must we regard the danger to life in the less severe

forms of appendicitis so threatening as to demand insistence on operative steps in the face of clamorous objection and serious inconvenience? Certainly the overwhelming majority of practical men still say "No!" In those cases severe at the outset, in those progressing even with milder symptoms without relief for forty hours, the answer is changed to "Yes," though delay, hesitation, and unsuitable surroundings will often protract the case to a hopeless condition.

The operative technique is to be considered as applying to four pathological conditions:

First: The incipient stage, before the formation of strong adhesions or pus. The same technique applies also to the so-called intermediary operation.

Second: Removal of the appendix with adhesions and probable suppuration and gangrene.

Third: Incision and exposure of diseased structures without attempting removal of appendix.

Fourth: Operation in general peritonitis.

Preparation of the patient in the first class is as in other elective operations on the abdomen, except that purgation is not to be employed beyond a saline laxative, not repeated.

The incision preferred by Fowler* is oblique, beginning to the right of the semi-lunar line, over the tumor or situation of the appendix. The deep epigastric veins are in the line of the prolonged direct incision. The Trendelenberg posture may be employed in this first class of cases, but is unnecessary. The one and a half inch incision of Morris † is rarely enough, and no valid objection can be made to lengthening it either up or down, or to lateral cuts if conditions arise demanding it. When the cecum appears the appendix is found by tracing the central longitudinal band to its terminus, where the appendix is always attached.

When the cavity has been opened the relation of the appendix to the ileo-cecal juncture offers a valuable guide in

*Annals of American Surgery, March, 1894.
†Mathews' Medical Quarterly, January, 1894.

troublesome cases; the root of the appendix is always within an inch and a half of this junction. No pus is expected in this class of cases. Adhesions are carefully separated, and exploration with the finger for possible collections of pus made between the cecum and the iliac body.

The mesentery is now tied with fine catgut and cut away. The vermiform is ligated with silk, cut off three fourths of an inch in length, tucked into the cecal wall and buried with Lembert sutures of silk. Better still, I think, is to invaginate the end of the appendix into the cecum and close with Lembert sutures of silk. All this supposes no considerable septic conditions present; no drainage is required. The abdomen is closed as after celiotomy for other lesions, according to the practice of the operator.

Second Class: The second class of cases presents operations upon patients seen from the third to fifth day (or later) of the illness as a rule. In these cases adhesions have already begun to form, in some instances strong enough to wall off the peritoneal cavity, in others so friable as to be readily broken down. The difficulties here are much greater than in the first class. The Trendelenburg position is unsafe, lest liberated septic products flood the cavity. The same incision is to be made as above described, except it should be free enough to admit of easy access to the parts. When the situation of the abscess is reached, protection to the peritoneum should be insured by gauze and towels introduced into the wound so as to prevent the admission of any pus that may be dislodged. These towels should be wrung out of a solution of bichloride one to one thousand, and should thoroughly protect the cavity. The adhesions should then be carefully parted, and search made for pus collections between the cecum and pelvic wall. If any pus is evacuated it should be carefully wiped away until all has been expelled; clean gauzes should then be applied and search made for the appendix. It is to be borne in mind that the appendix itself may

form a part of these adhesions, and its disturbance may seriously endanger the welfare of the patient. Under these circumstances the propriety of its removal or of further search for pus collections is a question that must be left to the judgment of the surgeon. If the condition of the intestinal obstructions makes a complication of the operation, the propriety of complete investigation is unquestionable. These conditions should always be explored, as the risk of leaving the adhesions that cause the obstruction is greater than the danger of breaking them down.

The treatment of the appendix itself in cases of this class is much the same as in the first class, except that after it is ligated its cut edges should be cauterized with pure carbolic acid; an ordinary needle dipped into the carbolic acid and rubbed over the cut edges of the stump answers the purpose. The excess of carbolic acid can be wiped away with a little gauze and the stump covered with a portion of the peritoneum or mesentery. The mesentery of the appendix should be ligated separately. After all is finished these wounds should be wiped out with sponges dipped in one to two thousand solution of mercury, especially if there have been any evidences of pus or gangrene; a drainage-tube should then be introduced and the wound closed around it as after other operations of this character.

Third Class: When conditions such as described above, namely, abscess, gangrene, and evidence of septic appendicitis exist, together with adhesions sufficiently strong to resist ordinary manipulations, and especially when the appendix is so placed as to form a part of these adhesions, particularly when pointing toward the median line of the body, it is the voice of the profession at large that the wiser course is incision and drainage without destruction of these adhesions. The danger of infecting the peritoneal cavity is greater than the risk of leaving these infected particles of *débris* in their present situation. Thorough irrigation of the parts, the

release of all purulent collections safely accessible, and packing with iodoform gauze constitute the technique of this class. After the abscess has been evacuated and cleansed, provisional sutures of silk-worm gut, to be tightened at the fourth or fifth day of the convalescence, are introduced. Bearing on this matter, I read the following very late opinion:

Of these fourteen cases, eleven were operated upon by myself during the last two years. All on whom I have operated in this manner have recovered, and none that I am aware of have had any trouble with the retained appendix since. As the mortality has been much greater when I have removed the appendix, I now rarely do so unless the appendix is unruptured, or, if ruptured, only when general peritonitis has occurred. Of these eleven cases I have been able to follow the history of eight, several of whom are here to-night for examination. The three whom I have not been able to find were hospital cases; two of them were brought to the hospital by physicians. If either of these had had a recurrence needing surgical aid I should probably have known it. Of the eight whose histories I have been able to follow, none have had the slightest symptom referable to the appendix since the operation. No tumor is to be felt, and no tenderness. Indeed, they all appear to have been singularly free from diseases of all sorts since the operation.

From the uniformity with which full and complete recovery has occurred in the few cases that have come under my care, it looks as though the appendix is not very liable to give trouble if permitted to remain. Indeed, I think it is quite likely, in cases such as we have been considering, that the opening from the appendix into the intestine is closed early in the attack—closed quite as firmly as any ligature would close it, and there is but little probability that fecal matters will ever be again able to enter the appendix, either to cause a fecal fistula to follow the operation or to start another case of appendicitis in the future. If it were not firmly closed the pus would never have broken through the wall of the appendix, or, having broken through, the resulting abscess would not have increased in size, but would have emptied itself through the appendix into the bowel.

To further illustrate the strength of this obstruction at the base of the appendix, I have observed, in several cases where

fecal fistula followed appendicitis, that in none did the feces make their exit through the appendix, but through other portions of the intestines, showing that the inflammatory deposit closing the appendix was even stronger than the healthy bowel.

The mortality following operations for appendicitis is mainly due to general septic peritonitis and to intestinal obstruction. If we will look into the cavity of a fully developed abscess such as we have been considering, we can readily see how these complications may follow the search for or removal of the appendix. The cavity of the abscess is lined with a thick layer of grayish, poorly organized, aplastic lymph, filled with micro-organisms. The appendix lies buried beneath this lymph, and its cavity communicates freely with the general abscess cavity. The opening can occasionally be seen, and is often the only guide by which the position of the appendix can be recognized. To tear up this fragile and infected lymph, and distribute it through the peritoneal cavity while searching for and liberating the appendix, would greatly increase the probability of establishing a general septic peritonitis.

Intestinal obstruction following operations for appendicitis is probably due to kinking of the recently separated intestines. As they reunite, covered and stiffened as they are by inflammatory deposits, they can not adjust themselves as readily as at the first formation of the abscess.

To avoid any misunderstanding, let me state that it is only in cases of circumscribed abscess that I have permitted the appendix to remain. When it is still unruptured, or in general peritonitis or obstruction, it should be removed.

Tait in England, and Reclus and Schmidt on the Continent, as well as many others, content themselves in these cases of local purulent peritonitis with protecting the peritoneal cavity and draining. Others, however, still consider that no operation is complete without removing the appendix. In the March issue of the Annals of Surgery, Fowler advises in these cases the removal of as much of the appendix as can be done without separating adhesions, but considers it necessary to remove the rest of the appendix at a second operation.—*J. M. Barton, College and Clinical Record, May*, 1894.

Some surgeons prefer to anesthetize the patient a second time after a week, and refreshen the edges and introduce new sutures at this time. Either course may be employed. The

drainage by means of iodoform gauze is to be kept up until the bottom of the wound is covered with healthy granulations. Quite a considerable number of skilled operators in this country and Europe have reported cases treated in this manner, and the tendency is now against the complete operations in conditions such as I have just described.

Fourth Class: This represents one of the most hopeless conditions to which a surgeon can be summoned. It is the result most commonly of perforation of the appendix with the escape of its contents or of septic purulent collections into the cavity. Occasionally septic peritonitis develops without pus or perforation. The gravity of the condition, however, is much the same. This condition may arise even within the first twenty-four or forty-eight hours, and indeed it is always to be remembered that appendicitis often remains latent for even weeks or months, suddenly bursting into general peritonitis by a rupture or perforation. The symptoms of general peritonitis are familiar to you all. All operations under conditions of this kind are to be undertaken only under an understanding with the patient or the family that the condition is almost hopeless, either with or without an operation, and that there is nothing to be hoped for by the expectant plan. Incision in the median line, and irrigation with some antiseptic solution as the choice of the surgeon may indicate, the introduction of wicks for drainage after the manner suggested by Morris, together with some constitutional treatment and stimulation, constitute the proper course. Of course if the patient recover from the immediate gravity of this condition he is to be treated upon the same general plan as indicated in similar operations.

After-treatment. It is very well after the successful technique in the first class of cases, and perhaps also in the second, to employ in the first twenty-four hours a mild saline. Under those circumstances, however, where the security of the ligature is doubtful, and especially where there is a risk

of leaking, the bowels should be moved by injections; the propriety of washing out the stomach is perhaps questionable on account of its disturbing the patient; where, however, there are evidences of intestinal obstruction it is well to employ lavage. The administration of morphine in the early hours after the operation is employed only when absolutely necessary; most surgeons believe it conduces to interference with the intestinal circulation and is an unwise plan. Intestinal obstruction is oftentimes due to the reforming of adhesions, and not infrequently develops from the fifth to tenth day, and occasionally even later. If it persists in spite of the proper treatment, the propriety of reopening the abdomen is unquestionable. Where peritonitis exists, and the obstruction is the result of the paralysis of the intestines, nothing is to be hoped for by a second operation. These cases all die, whatever the treatment, and it is no credit to surgery to inflict additional operations upon them. Fecal fistula and ventral hernia are occasional complications after this as after other laparotomies and operations upon the intestinal tract, and their treatment is in nowise different. The patient should be kept recumbent three weeks.

DISCUSSION.

Dr. L. S. McMurtry, Louisville: In regard to the etiology of the disease, it has been so thoroughly covered by Dr. Cartledge's paper, who has made himself thoroughly familiar with the subject from a practical standpoint, as well as from his contributions to our literature, that I feel there is nothing left to be said in the discussion. If we do say all that has been said and stated regarding appendicitis, we are still a great deal at sea as to the exact cause of this murderous disease. I have no doubt that the appendix is a rudimentary organ. It has a great diversity of anatomical sites and relations, and is so related to the intestinal tract that its fecal contents are switched off from the current of the intestinal tract and there lodged in a way that is very conducive to inflammatory processes, ending in ulceration and other destructive pathological conditions. I believe the anatomical relations

of this organ have a great deal to do with this disease. There is the greatest diversity occurring in different individuals. I have seen an appendix of very small size in adults. In one case that I saw it measured ten inches in length, lying spread over a large ovarian cyst. As one of the essayists stated, we are not in a position as yet to say that the length of the appendix has much to do with its liability to disease, but undoubtedly the variations to which the appendix is susceptible within physiological limits justify us to look to it to find the cause of the disease.

In the second place, the bacteriology of this subject is very interesting and important. The bacterium coli communis, which exists in the alimentary tract all the time, is a micro-organism that has been found by careful observers in every case of perforative appendicitis that has been examined. These micro-organisms have been found in the lungs in cases of appendicitis by metastasis. In perforative appendicitis, between the cavity of the appendix and an abscess sac, we find colonies of the bacteria coli communis. This is an important fact, and a bacteriological contribution to the etiology of this disease. These observations are so new that we are not justified in saying how much they have to do with the origin of the disease. All are agreed, however, just now that the traditional cherry seed or grape seed has little to do with the causation of appendicitis. I have operated for the disease in one case upon a child seven years of age. There are cases on record as young as two years, and appendicitis sometimes occurs in people past fifty years of age; but between ten and thirty is the age that persons are most liable to this disease. It is very exceptional to find foreign bodies, such as seeds, in the contents of the appendix, and we know how universal is the habit among people of eating fruits that have small seeds. Most frequently the diseased appendix is found to contain a fecal concretion, yet it is not uncommon to find a fecal concretion in an appendix that is not diseased, and I think, if you will excuse the apparent paradox, that the most common cause of appendicitis is a previous attack of the disease. However it may be, I believe the exposition of the pathology of the affection and its etiology, as presented this morning to the Society, cover every thing up to the present time that can be touched upon as being reliable.

DR. JOHN A. LARRABEE, Louisville: I am on the outside so far as this question is concerned, and yet as a physician I can not

but be interested in it. In this discussion I desire to say that the doctor has a place in the surgical bearing of appendicitis or peritonitis, or both. I think conservatism has been illustrated this morning, in the papers that have been read, to a greater extent than for years in the Society with reference to this matter; but the part the medical man plays in the diagnosis of this affection is more than was admitted by one of the papers.

With reference to the operative procedures in appendicitis I have nothing to say; but in the discussion of this subject peritonitis was included and appendicitis made the *fons et origo mali* of the whole business. I think appendicitis can come from other causes than those mentioned. I am prepared to hear almost any thing and every thing, but I must confess I was not prepared to hear such an advance in pathology as was made by one of the essayists, namely, that we can have a physiological and pathological inflammation. I have not yet gotten to that point. I have learned that all inflammations are pathological. In the staking out of this ground it is not left entirely to the surgeon, as will be seen by two cases which I will briefly cite. I was called to see a patient for whose family I have prescribed for many years, but was not at home, and a surgeon was called. The man had been subject to attacks of bilious colic. I knew that fact. The surgeon did not. In three days from the time I received the call an operation was to be done for appendicitis. An operation was performed, and the appendix was found in a normal condition, so decidedly so that the surgeon would not take it out; but the patient's gall-bladder was found to be full of calculi, with one calculus in the ductus communis choledochus.

In another case, in which three competent physicians and one surgeon were called, it was said that there could be no doubt about the trouble being peritonitis originating in the appendix, and no course remained to be pursued other than that of surgery, as other treatment would be disastrous and positively culpable. However, the case was put on what would seem to be to-day condemned treatment—opium. The patient was put upon large and gradually increasing doses of opium to the extent of tolerance or holding the pain in abeyance. That patient lived, and has been for a year a most active man in business in the city of Louisville. He recovered in fourteen days from what was considered to be a form of peritonitis having its origin in the appendix.

I will close by asking a place for the "scrub" doctor, who, in the brilliant advance of surgery to-day, is likely to be crowded out.

DR. JOHN A. LEWIS, Georgetown: Apropos of this question under discussion, occupation has a good deal to do with the cause of appendicitis. The fact has been mentioned that it is much more common in man than in woman, and this is correct.

The question has been asked recently in some of the New York hospitals: What is the difference between the blood supply in the appendix of a woman and that of a man? I do not know that there is any difference. It is important for us to make the diagnosis early. It will aid us in determining whether we have a case of appendicitis or not. In an ordinary case of colic, if you inquire into the history of the patient, as a general thing you will find there has been some imprudence in diet. If the case be appendicitis, and you inquire into the cause, you will find there has been something in the occupation of the man that predisposes to it. To illustrate: I have had four cases within the last year, two caused by the men using a wood-saw. If a man who is not accustomed to using a buck-saw use one vigorously and has colic the next day, you may say that it is a case of appendicitis. The third case was caused by a man following a pond-scraper, and the fourth by riding a horse. Exercise is one of the points to be taken into consideration in the causation of appendicitis. If it is appendicitis, a violent exercise produces it. If it is colic, it is imprudent diet. I am perfectly satisfied that in following a pond-scraper, using a buck-saw, and riding horseback the anatomical relations are such that we have in these forms of exercise an important point which may enable us to make an early diagnosis.

DR. J. G. CARPENTER, Stanford: I wish to indorse what Dr. Lewis has said in regard to imprudence in diet and violent exerercise and trauma in the production of appendicular inflammation. My experience has been similar to his. An early diagnosis is every thing to the patient, to the family, to the physician, and to the surgeon. We can not make a diagnosis absolutely when appendicitis *per se* is present. We know there is a pathological lesion there that if left untouched will cost the patient his life. So we must be prepared, if we find one or half a dozen things, to save the patient's life when we open the abdomen. As to operative

interference, we should operate while the patient has a living chance, and if we operate and death occurs, a *post-mortem* is made and the pathological specimen shown to the family, which always teaches them that delays are dangerous, and that "procrastination is the thief of time," and has caused the death of the patient. Show the pathological specimens to the family, and one death will convert a whole community and perhaps save a dozen or three dozen lives in each county.

As to the bichloride solution in irrigating the abdomen, it seems to me that the use of hot sterilized water is more preferable. It is better to be absolutely clean than to attempt to sterilize dirt in hot water.

DR. LOUIS FRANK, Louisville: In the subject of the pathology of appendicitis, I think the doctor referred to catarrhal inflammation of the appendix. I have seen two cases, *post-mortem*, where there was undoubtedly a catarrhal condition, and this condition of the appendix frequently leads to the perforative form, and those forms upon which we operate, by producing stricture on account of the swelling of the mucosa and of the rich lymphoid tissue there. There is no reason why cases of catarrhal appendicitis should not cause rupture as well as the suppurative and ulcerative forms of the affection.

Dr. McMurtry has well said, that in all cases of perforative appendicitis the bacilli coli commune have been constantly found. Park, of Buffalo, reports it as having been found in all cases in which there was perforation by subsequent culture experiments, no other organisms being present.

Another important point in the pathology is the occurrence of leucocytosis in these cases. In all his cases where there was perforation, an examination of the blood previous to operation showed the presence of leucocytosis, except in one instance in which operation was delayed merely on account of the absence of leucocytosis. This patient died.

I think Dr. Vance struck the key-note when he said appendicitis is a surgical disease. I believe that all cases of appendicitis, whether catarrhal or no matter of what character, belong to the surgeon; if these cases reach the surgeon in time we should have less deaths from operative interference. The reason the statistics of the surgeon are not as good as they should be, is because he sees his cases entirely too late. He sees a great majority of

them at times when operative interference has little chance of success.

As to Dr. Grant's paper, I agree with Dr. Carpenter that the use of bichloride is bad in any surgical work, and especially in the abdominal cavity. We know, in our studies, that if we do not use a bichloride solution of the strength of 1 to 2,000, it has absolutely no power to destroy bacteria in which pus appears, and it is incapable of preventing the introduction of germs for the time, or also of forming an insoluble albuminate coat about these organisms which may also inhibit their growth for a while and prevent further absorption when the coat is destroyed by the alkaline serum.

In closing I will read some statistics. According to Ranvier it is shown that in the Prussian army there were two thousand cases diagnosed as appendicitis and not operated on, with 96 per cent of recoveries. It is not stated how many cases were operated on, nor is the percentage of cures from operation given. In the Charité Hospital in Berlin, up to the 1st of January, 54 cases were reported on which no operation was done, with 94.5 per cent of cures. Nothnagel, of Vienna, reports 65 cases not operated on, with 95 per cent of cures. This looks a very large percentage from the medical aspect of the cases or the medical treatment of them; but as I have previously said, none of the reports state how many cases were operated on. Richardson, in this country, who has operated 152 times for appendicitis, in an article appearing before the 1st of January, 1894, reports 62 cases of acute appendicitis operated upon, with a mortality of 19 per cent, and 88 cases not operated on, with a mortality of 34 per cent.

Dr. C. B. Schoolfield, Dayton: There appears to be some difference as to the position of the physician and surgeon in this disease. It seems to me they should be co-operative. The particular point to which I desire to call attention is the time of operation. There is probably no disease that tries the judgment of the physician as much as that of appendicitis, and I believe I am thoroughly in accord with the surgeon in this matter when I say that whenever there is the formation of pus it is time for the surgeon to operate and remove it; but until we have positive knowledge that pus has formed around the appendix the surgeon is not justified in opening the abdomen. I have had in the last year two or three cases of appendicitis to come under my obser-

vation. I had in consultation with me the best practitioners, and it was a hard matter to determine the exact point where the surgeon should come in in those cases. Neither of them had arrived at the point of suppuration, and that was the point of decision in our cases. Wherever we find pus we should operate, and the appendix should be removed. If we have a patient with a good temperature and low pulse, although there may be decided tympanites, swelling of the abdomen and tenderness, unless there is chill or evidence of the formation of pus, it is certainly bad surgery to open the abdominal cavity. But when there is evidence of the formation of pus around the appendix, it is good surgery to operate, and if necessary to remove the appendix.

DR. FALCONER: I wish the gentlemen in discussing recurrent appendicitis would tell us what percentage is followed by or eventually ends in suppuration.

DR. J. G. CARPENTER: Dr. Carpenter will answer that question in closing the discussion.

DR. F. C. WILSON, Louisville: From the standpoint of the physician I desire to make one point as bearing upon the value of the statistics that we heard read just now, the large percentage of recoveries without operation. It seems to me the value of those statistics can only be estimated when we take into consideration the future history of all of the cases. I am fully satisfied in my own mind that if we could possibly follow out each one of those cases we would follow them to their death in a few years. I know from my own limited experience that appendicitis does recur within six months or a year, or it may be many years, and it is finally fatal. It is not right to estimate the first attack as a part of a statistical table and put it down as a cure without operation, when that same case followed out may be the direct result of a former attack. It is the recurrent attacks that terminate fatally unless operated on. I believe in giving every surgeon his due, and it is not right to burden our literature with statistics bearing on the medical side of the question which are not reliable and not just. I can recall in my own experience half a dozen or possibly ten cases wherein the patients have had attacks of appendicitis and have recovered. I am watching them, because I expect at some time to see a recurrence, and when the disease does recur I am disinclined to wait. After the diagnosis is made, I believe in early operation. I believe the lives of many

persons that are now lost could be saved by early operative interference. The earlier the diagnosis is made, especially if it is a recurrent case, and the sooner the operation is done the better it will be for the patient.

DR. F. J. YAGER, Campbellsburg: I indorse what the previous speakers have said, and favor early operation in all cases in which a diagnosis of appendicitis is made. I believe that many patients lose their lives by delay.

DR. HENRY T. NORMENT: As to the cause of appendicitis and the prevention of recurrent attacks I would say a word. One cause, not spoken of in the discussion so far, is deficient circulation in the region of the appendix. In all the cases I have seen there has been some impaction, perhaps not very great, of fecal matter in the lower bowel, in the colon and cecum. One patient had a stricture of the sigmoid flexure. Impaction of fecal matter will affect the mucous coat of the bowel. By this impaction of feces the micro-organisms are increased and form a hotbed for the development of catarrhal and suppurative appendicitis. I have never heard appendicitis attributed to this cause, but I think the circulation being modified or cut off by the impaction of fecal matter in the lower bowel may be a factor in the production of appendicitis. I think it has a great tendency to produce the first attack, and by removing this cause or causes, either by cathartics or antiseptics introduced by means of siphon tubes into the lower bowel and washing it out, we get rid of perhaps the most important factor in the etiology of appendicitis. By resorting to that treatment we prevent recurrent attacks. In my opinion many cases of appendicitis which we attribute to traumatism can more justly be ascribed to fecal impaction and a distended condition of the appendix by the engorgement which is produced there.

DR. SAMUEL E. WOODY, Louisville: When the general practitioner is confronted with a disease so obscure as appendicitis, to wait or not to wait is the question. Will Dr. Vance tell me what is the percentage of mortality due to the operation on fairly healthy subjects for appendicitis?

DR. VANCE: I think it is practically *nil* in competent hands.

DR. WOODY: Do you say one per cent?

DR. VANCE: I should say about that, or possibly a little more.

DR. WOODY: I would like to know now what is the percentage of fatal cases that may be charged to the waiting. In my

experience with appendicitis as a general practitioner, I find the mortality from waiting is about ten or perhaps twenty per cent. We wait a great many times when we ought not to. Shall we wait in these cases? I think not. As soon as the diagnosis is made, or as soon as we are able to suspect the existence of appendicitis, I believe in calling in the surgeon.

DR. L. S. MCMURTRY, Louisville: I want to call attention to one point brought out by my friend Dr. Schoolfield, and upon which I think Dr. Falconer predicates his inquiry. Dr. Schoolfield says that the time to operate in these cases is when suppuration has occurred. Dr. Falconer makes the inquiry, what per cent of these cases suppurate? If they could be arranged upon the basis predicated by Dr. Schoolfield it would solve the problem of operability. That will not do at all. We can have a sloughing gangrenous appendix without suppuration, just as we would have gangrene in a strangulated hernia. When suppuration occurs it is too late to operate. You are operating upon a moribund patient when you demonstrate that you have suppuration.

The position enunciated by Dr. Wilson here this morning is exactly that enunciated by Dr. J. M. Dacosta in a discussion before the College of Physicians and Surgeons of Philadelphia. He says, whenever you have the least doubt as to operating, always operate. Dr. Dacosta is the first advocate I have known to come squarely up to that point. It is where we all will come when we are more familiar with this subject. As our experience enlarges and we become more and more familiar with appendicitis, but one fact is rapidly being demonstrated, although it is a difficult one to thoroughly accept by the entire profession, and it is this: In competent hands the risk of opening the abdomen amounts practically to nothing. I say it deliberately, that in skilled hands the risk of making an exploratory incision in the right semilunar line is practically *nil.* Whenever the danger of waiting is greater than the danger of an operation, always operate. So says Dacosta and so says Wilson.

As illustrative of the treacherous nature of this disease, I will cite a case. I saw a patient in the center of the State with appendicitis. He had a pulse of 70 or 80, a temperature practically normal. He was doing exceedingly well; we were chatting by his bedside, and we left shortly after, the operation being postponed. In six hours thereafter his appendix was perforated.

Dr. Larrabee suggested the use of opium, an agent that has been the means of losing more lives in this disease than any other one thing you can mention. If you have a case of suspected appendicitis and the life of the patient depends upon a judicious decision of the question of operative interference, by administering opium you have taken away your guide; the disease is masked. If you give a saline purgative you relieve the patient's pain quicker, and if you need to do an operation you have taken a preliminary step to get him ready for the operation.

Dr. A. M. Cartledge, Louisville: I desire to call attention to one or two points in closing. First, with reference to the original classification of appendicitis. I have for two years past been advocating the discontinuance of the classification which embraces catarrhal appendicitis. I do not claim that a catarrhal state may not precede the suppurative stage of inflammation in the mucous membrane. As a matter of fact it always does; but I can not agree with Dr. Frank and some of the gentlemen who embrace this classification, as it is misleading. It leads to just such conclusions as Dr. Schoolfield calls attention to, that we must wait for suppuration before operating. I claim that it is exceedingly difficult sometimes to recognize suppurative appendicitis, and I do not think there is that man who can make a diagnosis of a catarrhal secretion in the appendix. That it may be the preliminary stage, or that it leads to many cases of suppurative inflammation in the appendix I am ready to believe. It is misleading, however, in that it is a catarrhal appendicitis that gets well. When once suppuration has taken place there is a lesion present, and if that lesion terminates in resolution we have stricture of an organ whose lumen is small, and this becomes a subsequent cause of disease.

As to foreign bodies as etiological factors, I am sure that the pendulum has swung too far in the opposite direction. Twenty years ago we thought all cases of appendicitis were due to cherry stones, seeds, etc. Because we have been operating and found no cherry stones, it will not do for us to think that they have no significance. This is a mistake. They have an etiological bearing in the production of the disease. I believe foreign bodies, by causing tissue lesions about and in the appendix, are the starting point of the disease. They pass away, and we do not always find them here. Fecal concretions are often found. I believe

these foreign bodies by bruising the mucosa act as a predisposing cause by forming a point of least resistance, which becomes invaded by the bacillus coli commune.

As to the removal of the appendix, I would call attention to Dr. Grant's paper. In those cases of far-advanced appendicitis, with large abscess, a weak pulse, etc., the best surgery in my opinion is to open the abscess and drain it. If the patient has strength enough left to justify more prolonged surgical interference, never leave the appendix. It is certainly bad surgery if it can be removed, because if an appendix that has been diseased is left, it is very apt to cause subsequent trouble, provided the abscess heals at all. It will remain open for five or six months if you do not remove the appendix. It is therefore commendable surgery to do this, and my observation is that you generally have to go back and remove the appendix subsequently if you do not do so at the preliminary operation.

With reference to obscurity in diagnosis, I want to go on record as saying that the diagnosis of appendicitis is involved in less obscurity than any disease with which I am familiar. I claim this, that where a patient is seized with constant pain in the right iliac fossa, vomits, has tenderness and muscular rigidity, and within three hours thereafter has circumscribed pain, ninety-eight times out of a hundred you may safely conclude that you have to deal with a case of appendicitis. The trouble lies in waiting for the development of abscess and the formation of pus, and as a consequence a great many cases have advanced to the suppurative stage before they reach the surgeon.

In regard to Dr. Falconer's question as to the percentage of relapsing cases that terminate in suppuration, I will say that such cases have already advanced to the suppurative stage and may terminate in a peritoneal abscess and death, or they may open externally. Dr. Long, of Virginia, in some remarks before a recent meeting of the Southern Surgical and Gynecological Association, stated that he had treated a patient in the twenty-second attack of appendicitis, and finally the man died with perforation and general peritonitis.

Dr. A. M. Vance, Louisville: I have very little to say, as the gentlemen who have preceded me have so thoroughly covered the ground. There is one point, however, I would like to mention, and it is this: Great care is necessary on the part of the

surgeon in the radical treatment of these cases of appendicitis, and particularly in those cases where the wound has to be packed. It is almost impossible to avoid more or less weakening of the abdominal wall, hence the greatest care is necessary on his part to insure accurate coaptation of all the layers to the abdominal wall. One of the ugliest things we have to deal with after operation is the occurrence of ventral hernia. I believe if we introduce provisional sutures and close them up gradually afterward, just as drainage will allow, we will guard against the occurrence of ventral hernia.

I agree with Dr. Cartledge in the statement that we should take out the appendix whenever possible. I would like to say also that the statistics given here to-day count for nothing.

DR. H. HORACE GRANT, Louisville: Dr. Larrabee, in the beginning of this discussion, referred to my statement of physiological inflammation as a novelty to him. If he will consider the advanced pathological studies that have been presented, he will find that a physiological inflammation is that variety of inflammation which terminates in recovery without the development of suppuration. It is that process of inflammation which completes all repair, and it is a form of inflammation that takes place in the irritations which Dr. Cartledge described in his remarks as catarrhal inflammation of the parts in which the return to the normal condition is not accompanied by any septic infection. I think it is a common form of irritation about the appendix.

I have nothing particularly to say about the paper of Dr. Cartledge, except that he has almost entirely represented my own views. I have no criticism to offer upon his remarks on catarrhal appendicitis. The views enunciated in my paper are not exclusively those of my own, but those of the majority of surgeons that I find represented at the present time in current medical literature. I feel sure, however, that a great majority of those who think of this subject will remember that the danger of general peritonitis is exceedingly great when any septic material enters the cavity. If we do not break up the adhesions after making our incision, and pack the cavity with iodoform gauze, which establishes free drainage, and the appendix (which is the original cause of the entire trouble) is allowed to slough away with the other products of inflammation, it seems to me the case is infinitely safer than if the operation is completed. You can open the

abdominal cavity when septic infection is present, but no one can deny that the greatest danger is present always in the admission of any germ to that cavity, and no agency employed by any human being can protect it. The surgeon finds a large abscess and evacuates it by sticking his fingers around and about it. This danger is avoided by not breaking up the adhesions put there by nature. It is maintained by many operators, whose views are given in our current medical literature at the present time, that if infection does occur after the primary operation, a secondary operation can be done at any time without aggravating the existing condition. It is infinitely better to operate at the earliest possible moment in these cases after the diagnosis is made than to wait, as has been suggested by gentlemen who have discussed this phase of the subject; but if you operate and find the abscess cavity shut off from the peritoneum, it is better not to break up the adhesions, but to open the abscess, pack it with gauze, allow the *débris* to pass away, and close the wound. If, after ten days or two weeks, further trouble should occur, a secondary operation can be performed.

In speaking of bichloride gauze I said nothing about its use in the abdominal cavity. It should be outside the cavity, and I am surprised to think that my friends, who know so well my views in regard to this subject, thought I would use a germicide of this character in the abdominal cavity at all.

With respect to mercurial solutions in septic abscesses, I am obliged to differ with some of the gentlemen. It is my firm belief that in all septic processes the septic action is greatly interfered with and suppuration is prevented in very many instances by the use of a strong solution of mercury. Although from a theoretical standpoint it can be readily understood that the solution will not prevent suppuration, still, beyond all question, suppuration is greatly diminished by it.

TRAUMATIC PERITONITIS IN CHILDREN.

By Harry J. Cowan, M. D.
Danville, Ky.

Peritonitis may be the result of such widely different kinds and varying degrees of traumatism that it is necessary to more closely define the subject of this essay in order to be intelligible.

Wounds of the abdomen and the application to it of such violence as to rupture some of its contained viscera usually produce peritonitis, but in these cases the solution of continuity of the viscera, or the direct introduction of micro-organisms to the injured peritoneum, is of vastly more importance than the primary injury to the membrane itself. To peritonitis thus produced the following remarks do not apply.

Contusions of the abdomen, however, which do not injure any of its contained viscera, which are of so trivial a nature as not to leave their mark upon the skin, and to which no importance is attached at the time of their reception, may produce very serious peritoneal inflammation, and, if the history of the injury is not obtained, one more case is added to the long list of acute idiopathic peritonitis.

In this connection Dr. G. Frank Lydston, in a paper which will again be referred to, notes three significant facts: that acute idiopathic peritonitis is much more common in children than in adults; that the abdominal cavity is relatively not so well protected in children; that in the abandon of their sports children receive more contusions than adults, and that the history of such traumatism is more difficult to obtain.

The etiology of acute peritonitis occurring in a previously healthy child is extremely simple, for if we can exclude perityphlitis, septic infection from vulvo-vaginitis and the various forms of mechanical obstruction, for all practical purposes we have to deal with the result of a trauma, and if the child is of sufficient age inquiry will elicit the fact.

In a very limited experience I have seen several such cases in both children and adults. The inflammation is usually sharply circumscribed to the region at which the injury was received, and under favorable circumstances shows no tendency to extend. The history of a contusion or concussion of the abdomen, followed in a few days by abdominal pain, an asymmetrical distension with obliteration of the subensiform depression, tenderness all over the abdomen, but most marked at the seat of injury, a febrile movement, infrequently vomiting, and always an almost complete obstruction which resists for many hours the combined attacks of vigorous cathartics and high enemas, are the prominent features of this condition. It has seemed to me that pain in this form of peritonitis was more constant and agonizing than in other forms, and also that vomiting was the least constant and marked phenomenon, its absence being of value in the differential diagnosis from mechanical obstruction.

In considering the treatment of peritonitis following contusion of the abdomen the cases naturally group themselves into three classes:

1. The inflammation remains circumscribed and suppuration does not occur.

2. Micro-organisms gain access to the inflamed area, producing according to their character and the resisting power of the individual attacked a circumscribed abscess or a general suppurative peritonitis.

3. The inflammatory process, although pursuing a practically aseptic course, gradually spreads until it involves a large portion of the peritoneal surface.

For cases of the first class, absolute rest, the withdrawal of all food, vigorous catharsis, combined with high enemas, persisted in until an artificial diarrhea has been produced, and then sufficient opium to relieve pain, and if distension persists the constant wearing of the rectal-tube is all that is required. It is not necessary for me to dwell upon the importance of incision and drainage when there is evidence of suppuration. The determination of the time when reliance upon nature and catharsis shall cease and operative interference be undertaken, in the third condition mentioned above, gives rise to considerable anxiety.

Although there is no evidence of suppuration the inflammatory process extends from day to day, the pain continues unabated, the abdomen gradually becomes more and more tense, the bowels remain locked, or if catharsis be produced it does not relieve either the pain or distension, the vital powers are being taxed by the constant pain, the great distension, the interference with alimentation. The question is, when shall we interfere?

From an Address in Surgery (Journal of the American Medical Association, June 25, 1887), by Dr. H. H. Mudd, I quote: "Laparotomy is not demanded in the presence of peritonitis, except where septic fluid is abundant, a purulent collection is evident, a general loss of vital power threatens death, or where there is grave functional disturbance."

The latter two exceptions apply well to the practically sterile peritonitis now under consideration. We should be governed more by the manner in which the organism is bearing the strain than by the abdominal symptoms. Laparotomy should be done when "a general loss of vital power threatens death, or where there is grave functional disturbance."

Such a case came under my care March 10, 1890, the history of which I copy from short notes taken at the time: The patient was eight years of age, a fairly well-nourished

boy, but showed the lymphatic diathesis. He was of constipated habit; not considered very strong; had been in usual health until the morning of the day upon which I first saw him, since which time he had been vomiting and complaining of great abdominal pain. The bowels had not been moved for three days; there was a history of a blow upon the abdomen two days previously, which had caused emesis at the time, but from which he soon recovered; face indicated considerable pain; tongue clean; pulse 90; temperature 101°.

He lay in bed upon the back; legs drawn up; abdomen tender, distended asymmetrically; most prominent above and to the left of the umbilicus, where the blow had been received; subensiform depression obliterated. Gave an enema which brought away a large fecal evacuation; ordered hot fomentations.

March 11. Vomiting had ceased; pain and distension not relieved; ordered calomel, one half grain every half hour, and hot fomentations. By evening he had been purged slightly; no relief of pain or distension; high enema given but not returned; ordered magnesia sulphate, teaspoonful every half hour until purged.

March 12. Has been freely purged but with no relief of either pain or distension; has not slept since the beginning of his illness; distension increasing; ordered opium sufficient to relieve pain, and hot fomentations.

March 13. Pain relieved by opium; distension increasing.

From this time until the 27th of March the distension gradually increased; more and more opium was required to relieve pain; very little nourishment was retained; temperature very irregular, never over 102° F., most of the time between 99° F. and 101° F.

On the 26th his condition was as follows: Face pinched; he required ¼ grain of morphia hypodermically every three hours, and even this did not entirely control the pain; abdomen enormously distended, but slightly asymmetrical, the

most prominent point being at the seat of injury; temperature 100° F.; pulse 130; bowels had not been moved for four days, although he had been given purgatives and high enemas, very little nourishment being retained.

In consultation with my father, Dr. George Cowan, we decided to open the abdomen, relieve the distension, flush and drain. Accordingly, on March 28, 1890, Dr. A. W. Johnston administering the anesthetic, I made a three-inch incision into the abdomen. A large quantity of small intestine immediately forced itself out of the wound, and three successive loops were incised, emptied, sutured, and returned before the distension was sufficiently relieved to explore the abdomen. The condition found was one of very widespread peritonitis; soft adhesions were found here and there wherever the hand was passed; the pelvis contained a small quantity of dark-red fluid; there was no evidence of disease in the region of the appendix. The abdomen was flushed, drained, and closed with the distension very materially relieved; pain did not return on recovery from the anesthetic; he was purged freely on the second day, when the abdomen became flat.

During his convalescence considerable distension recurred at intervals of a few days, but was always relieved by a purge. He is now well.

Dr. G. Frank Lydston, in a paper on this subject published in the Journal of the American Medical Association, June, 1890, reports a case of traumatic peritonitis occurring in a girl seven years old, produced by a fall against the corner of a table. Peritonitis was developed four days after the receipt of the injury. On the third day of the disease he made a small opening in the abdomen, punctured the intestines at numerous points with an exploring needle, washed, drained, and closed. The child made an uninterrupted recovery. In closing his paper Dr. Lydston makes, among others, the following conclusions:

"1. I do not believe in acute primary idiopathic peritonitis.

"2. The majority of cases of so-called idiopathic peritonitis in children will be found upon inquiry to be traumatic.

"3. Slight injuries of the abdominal wall are relatively more dangerous in children than in adults.

"4. Surgical interference is indicated in all cases of severe general peritonitis and cases of localized suppurative peritonitis."

In all of these conclusions I concur.

DISCUSSION.

DR. R. B. GILBERT, Louisville: I would ask the author if in those cases of peritonitis following a slight blow the children had a predisposition to inflammatory reaction? The cases reported are unusual. Children have received many blows equally as severe, and yet peritonitis has not followed as a consequence. In a child with a tubercular diathesis I can understand how traumatism may quickly set up an inflammation which would go on to rapid destruction. There is another form of peritonitis not mentioned in the paper which occurs in children, and that is peritonitis caused by perforation of the wall of the abdomen by lumbricoid worms. I have seen one or two cases on *post-mortem* examination which occurred in that way. They were supposed to have been traumatisms caused by slight blows, but these parasites were the real cause, as demonstrated *post-mortem*.

I had one case last summer in the Louisville Hospital supposed to be caused by traumatism, but on inquiry I found there was a decided tubercular diathesis, and on *post-mortem* the tubercular peritonitis was general.

DR. J. G. CARPENTER, Stanford: I do not believe there is any such thing as idiopathic peritonitis. There are undoubtedly some cases of a tubercular diathesis that predispose the peritoneum to inflammations, and a slight trauma or blow may kindle this inflammation. I also believe that it is conservative to treat these patients by a good laxative in preference to the opium plan.

DR. COWAN (closing the discussion): My paper simply dealt with traumatic peritonitis, and not with tubercular peritonitis. I do not believe the former is a rare affection. Children certainly, and adults also, receive many contusions of the abdomen without the production of peritonitis. Because many soldiers go to battle and many return without getting shot, it is no proof that it is not dangerous to be exposed to the bullets on the battle-field. Of course, if traumatic peritonitis should occur in a child with a tubercular diathesis, we would believe the trauma possibly brought on an acute exacerbation of the previously existing tubercular peritonitis, but the paper was not about children of that kind. It concerned those who were previously in good health and were suddenly taken with peritonitis. Tubercular peritonitis I ruled out of the question, and also forms of peritonitis which are due to any kind of diathesis, as peritonitis following scarlet fever, measles, any general disease or diathesis. The paper dealt with peritonitis following injury. I took pains in reading it to state that it referred only to those cases in which peritonitis was acutely developed in a child that had been previously healthy.

NEPHRECTOMY FOR SARCOMA.

By W. O. Roberts, M. D.
Louisville, Ky.

The following is a synopsis of Dr. Roberts' paper:

Dr. W. O. Roberts, of Louisville, presented a patient, a boy about five years of age, upon whom he had performed a nephrotomy in December last. The tumor was noticed six weeks before the doctor saw him, and was then about the size of a small cocoanut. The child in running fell on his abdomen, and in passing the hand over the abdomen to see whether he was hurt this tumor was discovered. How long it had been there they did not know. The doctor saw the case for the first time in the latter part of November with the physicians in charge, Drs. Beard, Beckham, Barker, and Harwood, of Shelbyville. At that time the tumor filled the greater part of the left side of the abdomen and extended about two inches beyond the median line into the right side. Patient had a temperature of 101°, pulse 112. There was a question as to whether there was fluctuation, and to settle this question the aspirator was used and nothing but a little blood was withdrawn. The doctor then diagnosed the case as sarcoma of the kidney, and advised a nephrotomy.

The patient was brought to the Norton Infirmary in the latter part of December. The tumor had then increased in size so that it extended at least three inches beyond the median line into the right side and filled almost the entire left side of the abdomen. There being some doubt in the minds of some of the gentlemen present, who had been in charge of the case, as to the organ involved, some thinking it

was the spleen, it was decided to make first an exploratory incision two inches in length along the outer border of the left rectus muscle. Through this it was found to be a sarcoma of the kidney.

An incision was then made from the lower extremity of the exploratory incision and just beneath the ribs back to the erector spinæ muscle—the incision which was recommended by Abbe and Kocher. When the tumor was enucleated the child was so prostrated that it was decided to tie the ureter and vessels *en masse* so as not to prolong the operation. The wound was then brought together by deep and superficial sutures, and the child put to bed almost moribund. He gradually rallied and made an almost uninterrupted recovery, leaving the infirmary four weeks after the operation. Since then he has steadily improved, and at the present time seems to be in perfect health. There is no sign of ventral hernia.

The doctor called attention to the fact that with the transverse incision the kidney is much more easily reached, and in the case of small tumors the peritoneum may be pushed forward. Several years ago he removed an immense sarcoma in a child ten years of age, and in that case made the incision in the median line. The patient made a good recovery, but died some months afterward from recurrence of the growth. He was struck with the great advantage the transverse has over the median incision. The tumor in the present case weighed a little over seven pounds. It sprung from the capsule of the kidney. Only a small portion of the kidney seemed to be involved in the growth, but it was thought best to remove the entire organ. In summing up the case the doctor stated that one half the cases usually die from the immediate effects of the operation, but thinks that the Trendelenberg position will lessen very materially the shock and loss of blood, and thereby lessen the mortality from the immediate effects of the operation. There are several cases on record where the patients have survived the operation four years.

DISCUSSION.

DR. W. L. RODMAN, Louisville: I think the case reported is a most gratifying one indeed, and I wish to congratulate Dr. Roberts, as well as the father and mother, upon the excellent result. It is a good result, as emphasized by the recollection of the fact that at least from forty-five to fifty per cent of nephrotomies die either upon the table or soon thereafter. I wish to say in connection with the case that I believe the transverse incision (Abbe's incision) is the best one that can be made in the removal of these growths. The objection to the anterior incision of Langenbeck is that you can not establish the best drainage, and the objection to the posterior incision is that it does not give free access to the inside of the abdomen, and you may remove the only kidney a man has. In the transverse incision you get the chief advantages of both methods. You can examine the opposite kidney, and you get in the posterior angle of the wound the best drainage that can be made, which combines the chief advantages of both the anterior and posterior methods.

I recently had the privilege of seeing Abbe operate on the case of a boy, three or four years of age, and I was struck with the extreme facility with which the kidney was reached and the pedicle ligated and secured.

PERINEAL SECTION (EXTERNAL) WITHOUT A GUIDE.

By B. F. Herndon, M. D.
Barbourville, Ky.

In assuming the duties and responsibilities of preparing a paper for the consideration of such a learned body of doctors as compose the Kentucky State Medical Society, one especially not accustomed to journalizing must of necessity feel considerable embarrassment upon such an occasion, to say the least of it.

The object of this paper will be twofold: firstly, to consume as little of your time as possible, and secondly, to give as briefly as I can the details of an external perineal section without a guide.

The patient is a farmer, fifty-three years of age; general health has heretofore been good, with the exception of an attack of articular rheumatism some three or four years prior to the present trouble. Whether he has ever had gonorrhea or not I am unable to ascertain. On October 18, 1893, while at work in the lumber business, he was engaged in sawing off a stock from the trunk of a very large tree, and, being on the lower side of the log, in his efforts to get out of the way of the log he slipped and fell, the log passing across his abdomen and lower extremities.

I was called to see him hurriedly on the same day of the accident, but was professionally unable to go, and it was only on the morning of the fifth day after the accident that I was enabled to see him. I give you this brief history of the accident for the reason that will appear further on.

I found the patient in great pain; the penis, scrotum, and perineum were extravasated with urine and swollen to an enormous extent; the bowels and stomach were considerably distended with gas, and he had had no evacuation from the bowels or bladder since the day of the accident. The extravasated condition of the parts heretofore mentioned was relieved by the use of the Truax surgical pump and a small aspirating needle, and the bowels were relieved by an enema. On thorough examination of the urethra I found he had a stricture posterior to the bulbo-membranous junction impermeable to the smallest filiform bougie.

The temperature was found to be 104°, pulse 120. The patient was placed in the lithotomy position, the parts cleansed and shaven.

The operation I performed was external perineal urethrotomy, sometimes called perineal section.

The instruments for this operation consisted of the ordinary scalpel-beaked bistoury, whalebone guide, grooved and tunneled catheter, some ordinary sounds, a gum catheter, small probe, grooved director, spatula, tenacula, two strong ligatures armed with curved needles, and the ordinary instruments for controlling hemorrhage.

The patient was anesthetized, the urethra was filled with olive oil. After having failed to introduce the guide into the bladder the tunneled catheter staff was passed over a whalebone guide along the urethra to the front face of the stricture, an incision about two and one half inches in length was then made in the median line down to and through the urethra into the groove at the end of the staff; the urethra was then sufficiently incised to permit the introduction of a large sound; the stricture in the anterior portion of the urethra was divided by the urethrotome. The urethra was now enlarged throughout to a uniform size; a rubber catheter, size 35, was then passed through the perineal wound into the bladder and the parts thoroughly irrigated. The anterior

opening was found to be directly in the median line. The major portion of the perineal wound was closed by antiseptic sutures carried deeply, leaving sufficient room for the introduction of a large flexible catheter through the neck of the bladder. The wound was dressed antiseptically, the catheter was removed on the fourth day. Different sized sounds were then passed every two or three days for two weeks. After the second week the urine was passed by the natural channel, the patient was put on tonic treatment and supporting diet; the wound healed nicely and rapidly; in six weeks the patient made an excellent recovery, and is at present at work and in good health.

In closing this paper I desire to call your attention to the fact that the patient informed me that he was treated for stricture some three or four years prior to the present trouble, while he was at Hot Springs, Arkansas, where he had gone for the benefit of his health while suffering with rheumatism, and had had no trouble in voiding his urine since then up to the time of the accident, but after the accident a country physician was called to see him, and attempted to relieve the bladder by the use of a female silver catheter. Now the question arises, was the extravasated condition of the parts heretofore mentioned due to traumatic causes (so to speak), that is to say, from the injury received from the log, the attempt at passing the female catheter, or from the natural consequence of the previous stricture? These questions I ask for information.

ACUTE LACERATIONS OF THE PERINEUM.

By J. G. Carpenter, M. D.
Stanford, Ky.

To Drs. Emmet, Price, Skene and other illustrious surgical lights the surgery of the perineum is an old story, yet to most of the general surgeons and physicians it is an uncultivated field that in due time will bring forth a surgical harvest of an hundred fold. An unfortunate person is she who has received a lacerated perineum; most unfortunate is she whose medical attendant is unable or afraid to detect a perineal rent, and also incompetent to give the necessary surgical treatment, or afraid to call a surgeon to do the essential repairs.

Professor Dewees, sr., said the obstetrician's whole duty to the parturient is not done until he has restored her to her former physiological state, viz., made her a sound woman.

Perineal lacerations do sometimes occur in the hands of the best physicians and surgeons, and most often occur to the ignorant, timid, and incompetent medical attendant and mid-wife; in their hands rents are the most disastrous to the patient.

Since lacerations take place with the best of surgeons, and are most successfully treated just after the third stage of labor, of how much greater importance and necessity is it then that the physician and midwife surgically incompetent should give the danger signal, viz., the presence of a rent, the dangers of delay to patient and family, and have a competent surgeon called and repair the rent at once. No physician should be allowed to attend a confinement if unable to repair a perineal rent. Every year the graduates of our medical schools are woefully deficient in the treatment of this accident.

The sequelæ of this rent are hemorrhage and shock—hemorrhage from the pudic obturator, bulbus vestibuli, vaginal and perineal veins and arteries, and, should the rent extend into the rectum, from the hemorrhoidal arteries and veins, it may be copious and considered *post-partum;* second, infection through an open wound, puerperal septicemia; third, acute anemia and collapse; fourth, should the rent not be repaired, a slow, tedious, and incomplete convalescence; fifth, uterine displacement and subinvolution and endometritis; sixth, prolapse of ovaries, ovarian and tubal disease; seventh, retroversion, prolapsus, and rectocele; eighth, hemorrhoids with eversion of anus, fissures and ulcers of anus and rectum; ninth, subsequently neurasthenia, reflexes to the brain, spinal cord, heart, lungs, kidneys, and peripheral nerves, manifested by irritation, congestion, neuralgia, and functional impairment of adjacent and remote organs.

The best statistics show one perineal rent to every four primiparæ—twenty-five per cent. The causes may be those inherent to mother; second, omissions and commissions of the medical attendant. Rents inherent to the patient are rigidity and hyperesthesia of the perineal nerves and muscles, caused by the products of a former inflammation which has impaired the elasticity and mobility of these muscles by former pelvic disease or trauma ("muscular ankyloses"), complication of labor with inflamed hemorrhoids, or the latter and anal fissure or rectal ulcer in the lower third of the rectum. Stretching or overdistension of the perineum during parturition, or by prolapse of pelvic organs and growths, extreme constipation and impaired nutrition are given as causes by Skene. The maternal parts may not be developed, as in young primiparæ; the child's head may be too large; approximation of pubic rami; varicosity of perineal veins; chronic edema; impaction of head, most frequently in occipito-posterior positions, and lastly, extraction of child by feet often cause rents of the perineum.

Phlegmatic women who have failed to take sufficient exercise to develop the pelvic floor are liable to lacerations during parturition; the muscles are poor in quality and rupture easily under extreme pressure.

In vigorous, muscular women the pelvic floor is often unyielding because of the great strength of the muscles, and before relaxation is done powerful uterine contractions drive the fetus forcibly on the muscles, and they, not having time to relax and stretch, tear. The pelvis may be shallow and wide in its straits; a precipitate labor forces the child suddenly before the muscles have had time to relax.

Sedentary or indolent habits, pelvic, perineal, and hemorrhoidal irritations, congestions, and inflammations impair the nutrition of the pelvic floor, render it irritable, softened, and predisposed to rents.

Women who live an indoor life, given to the follies of fashion, tight lacing, improper dress, are enervated and predisposed to rents of the utero-genital tract; pudendal hematocele, perineal and vulvar infiltrations from anasarca or phlegmon; the sitting or standing posture, precipitating the second stage of labor; violent uterine contractions with medium-size fetus and rigid perineum, and ergot given before the first stage of labor is complete, may precipitate labor and cause a rupture of the pelvic floor. Vaginal and rectal polyps or rectoliths may assist in producing rupture, also failure to prepare the patient for the ordeal of labor, an overloaded colon, sigmoid, and rectum, and distended bladder, failure to support the perineum and make the head, shoulder, or breech hug the arch of pubes, traction of forceps in the wrong direction, not following "Carus' curve," and Tarnier traction forceps by causing pressure on the pelvic floor with the traction rods, though the forceps are made to act in the proper direction.

The shape of the rents may be diamond, irregular, stellate, or longitudinal, oblique, and transverse. Accompanying or in

the absence of a perineal rent there may be a rent at the anterior commissure (*labiorum pudendi*), or an oblique or transverse tear of the posterior commissure, a recto-vaginal rent, with or without a cervical tear; the perineal body may be torn or the pelvic floor stretched without there being a cutaneous rent externally.

Varieties of perineal rents or injuries to the pelvic floor are, first, various degrees of laceration in the perineum, that is, in the median line of the pelvic floor; second, subcutaneous separations of the muscles of the pelvic floor at their junction in the median line or so-called perineal body; third, laceration in the median line and temporary loss of power in the remaining muscles from overdistension; fourth, laceration of the levator ani, occurring alone or accompanied by the lesions already given; fifth, atrophy and permanent paralysis from injury during parturition and other causes; sixth, loss of muscular motion caused by the products of former inflammation.

Diagnosis. Often an audible snap is heard by patient and attendants; acute pain and sensitive spot to patient on touching the raw, exposed surface of rent; a sensitive, uneven, depressed surface to sense of touch; absence of smooth integument or mucous membrane intact; absence of perineal body; shortening of space between anus and posterior fourchette; increase of the antero-posterior diameter of the ostium vaginæ; the abnormality of the rent and dissimilarity in touch to normal unabraded tissue. If necessary, ocular inspection, yet every accoucheur should have an eye on each of his fingers as well as in his head; absence of perineal body when one finger is passed into rectum and another in the vagina, the recto-vaginal septum only being present.

Should the physician do his whole duty he will first prepare the patient for the "lying-in period," then try to prevent complications during accouchement, and should they occur repair them at once, then women would come out of the

"lying-in chamber" sound and healthy. The dangers of delay, ignorance, timidity, prejudice, indolence, lack of surgical skill, auto-infection, impaired health, and the morphine habit would be avoided; health, happiness, prosperity, would be the patient's gain, and much gratitude and admiration from patients and friends, increase of clientèle, reputation, and revenue would be the doctor's great reward. When the obstetrician has done his whole duty then there will be none or few chronic lacerations for the pelvic surgeon to repair. Every respectable doctor must and will know how to surgically treat acute lacerations of the perineum. Unscrupulous and fakir doctors should never be allowed to join our noble profession and tinker with the sacred art of midwifery and its sequelæ. Forceps are a blessing to the mother, child, and accoucheur. When judiciously applied and in skillful hands they prevent lacerations, but become a power for evil in the hands of an incompetent applied at the wrong time, and traction and pressure made in the wrong direction. The Tarnier axis traction forceps no doubt cause many lacerations of perineum even when applied to multiparæ; when traction is made in the axis of the pelvic canal serious damage may be done also to the pelvic floor.

Many of the senior members of the profession, and a great many of our recent graduates know how to cause lacerations of the perineum and utero-genital tract with quinine, ergot, the forceps, the sitting or vertical posture, overdistended bladder, rectum, sigmoid, and colon, but know little or nothing about the surgical treatment of perineal rents and lacerations of the utero-genital tract; do not even know how, and are afraid to find them, and, should the patient find out after a long and incomplete convalescence the perineal floor is injured, the "Doc" is ready to send her to the far-away city professor of gynecology, when the patient should have received the proper attention at home. Incompetent physicians are as wholesale agents supplying the pelvic surgeon

with work—work from the drone's workshop that has to be done over before health and security of life can be restored to patients.

Prophylaxis (an ounce of prevention is better than a pound of cure) is doubly true of lacerations. Lusk says preventive measures are, first, those designed to check the exit of the head before the fullest expansion has been secured, and to prevent expulsion during the acme of pain when the borders of the orifice are most rigid; second, measures which give an upward movement to the head with the view of making all unoccupied space available beneath the arch of the pubes; third, measures which favor expulsion during the interval between the pains, or at least after the acme has subsided. By the parturient breathing short, fast, and thoracic, trying to suspend the pain of labor; also, voluntary action; the attendant's hands preventing expulsion of head by pressing it up and forward against symphysis pubis at the time of active pain; then as the labor pain subsides let the patient hold her breath and expel the head by voluntary action in the intervals of labor pains when the vulva and perineum are relaxed to the utmost. If the parturient can suspend voluntary assistance by mental control or chloroform many lacerations will be prevented. The relaxing influence of chloral hydrate internally, the hypodermic of morphia and atropia, and hot water vaginal and rectal enemata are powerful means of relaxing the perineal floor to its utmost capacity.

Though there are several degrees of laceration, yet practically speaking there are two, viz., the one which extends through the muscles of the anterior portion of the pelvic floor, that is, from the vulva to the sphincter ani muscle, and the other which extends through the sphincter ani muscles and into the rectum.

In its simplest form the laceration extends through the mucous membrane of the vulva, the integument, and the junction of union of the bulbo-cavernosus with the trans-

versus perinei muscles; a few fibers of the levator ani and the fascia, elastic and areolar tissues which constitute the perineal body. The second form of injury mentioned in the classification is subcutaneous separation of the muscles of the pelvic floor at their junction in the median line or perineal body. The mucous membrane of the vulva and the skin covering the perineum remain normal, but the transversus perinei muscles are torn apart in the median line. The bulbo-cavernosus muscles are separated from their insertions at the center of the perineum, and possibly some of the fibers of the levator ani muscle are also lacerated. There is, in short, skin and mucous membrane alone remaining uninjured. The result of this injury is falling of the pelvic floor, and usually prolapsus of the pelvic organs. The function of the pelvis is destroyed as completely as in the injury first described.

Again, while the index finger is in the vagina, the parts anterior to the sphincter ani muscle can be grasped between the finger and thumb, which will show that where the perineal body should be there is only skin and the posterior vaginal wall. There is still another method of examination, and perhaps the most critical one, that is, to pass one index finger into the vagina and the other into the rectum, when it will be found that the only resisting muscular tissue felt between the two fingers is the sphincter ani.

Atrophy, and the consequent paralysis from injuries during parturition and other causes, occurs only in cases of long standing, and is, in fact, a secondary state resulting from laceration of the muscles or overdistension. It may follow any of the injuries already mentioned that have been long neglected, or in which unsuccessful efforts have been made to overcome the original injury. The muscles having been torn or separated from their ligamentous attachments during parturition, become functionally inactive, and remain so until they undergo fatty degeneration and are finally lost. An acute laceration if not properly treated becomes a chronic one.

A chronic laceration of the perineum is accompanied by such general irritability as to change the disposition of the woman. The peritoneum is supplied liberally with blood-vessels and nerves, including branches from the sympathetic system which are freely distributed to the neighboring erectile tissues. The presence of sympathetic nerves offers an explanation of the reflex irritation so often produced by the cicatricial tissue in the perineum when a dense cicatricial tissue is left from a lacerated perineum. The most profound degree of anesthesia scarcely allays the irritation excited by traction necessarily produced in using Sims' speculum. When the perineum has been lacerated down to the fibers of the sphincter ani muscle, there remains no support to the uterus while the woman is in the upright position, except through the connective tissue and the utero-sacral ligaments. In the erect position a perpendicular line passes from the front of the sphincter ani through the posterior lip of the uterus or even behind it. The uterus is thus suspended over a constantly dilated and relaxed cavity, and with this state of things it can not surprise us that before a very long period complete prolapse of the uterus should take place.

Yet it is sometimes observed that with extensive laceration there exists neither disturbance of the nervous system nor any discomfort which can be attributed to a want of support. But these cases are certainly only exceptional, and sooner or later they all come under the same general rule. As long as the perineum is in its integrity the anterior and posterior walls of the vagina lie in close contact from lateral traction and air is excluded. This is due to the lateral attachment of the vagina with the connective tissue of the pelvis, and to the union of the pelvic fascia to the vaginal outlet, just as the canal becomes joined with the labia. The upper and lower walls of the canal are thus brought together the same as the sides of an elastic tube would be by lateral traction in a

direction similar to that exerted by the connective tissue around the vagina.

In lacerations of the perineum the ischio-perineal ligaments are divided, and the transversus perinei muscles and other attachments draw the sides of the vaginal outlet apart. The connective tissue of the pelvis can therefore no longer furnish the same support, nor in the same direction as before laceration, so that the canal remains patulous. The great discomfort which is experienced sometimes even before any prolapse has been detected must be due to overdistension of the blood-vessels, the coats of which are no longer properly supported, and their increased pressure on nerve fibers. This is a condition in itself likely to prove an important factor in displacing the uterus by adding to its weight and by exciting tenesmus. Whenever the perineum has been lacerated so that the proper degree of support of the vaginal walls is no longer exerted, there can be no doubt as to the necessity for an operation to restore the parts to their original condition. There are cases, however, where a doubt as to this necessity may remain, even after a careful examination. After the occurrence of the accident, and if the vagina, as has been described, becomes a patulous canal, the air will enter into and be displaced from the passage with every movement of the body. In chronic lacerations, in case of doubt as to the propriety of an operation, I question the patient in regard to this circumstance, and always operate when I learn that on suddenly turning in bed, or on making any quick movement, the patient observed the air to escape from the vagina, like flatus from the anus.

In all injuries of the pelvic floor which impair its supporting function to any extent, prolapse of the pelvic organs will follow in time, except in three conditions, viz: First, when the injury is compensated for by the muscles which still maintain their attachment to the vagina and rectum, drawing the remaining portion of the pelvic floor upward, forward,

and toward the pubes, thereby closing the vaginal orifice and supporting the pelvic organs; second, where by reason of some intrapelvic inflammation the organs have become fixed by adhesions; third, where the patient is abundantly supplied with adipose tissue and takes very little active exercise.

Treatment. The essentials of perfect surgical repair are, first, a healthy system and wound; second, perfect coaptation of wound tissues, muscle to corresponding muscle, tendon to tendon, ligament to ligament, fascia to fascia, mucosa to mucosa, skin to skin; third, stitches taken deep enough and describing the arc of a circle, so that each tissue will have its corresponding lacerated lips duly in apposition, and the entire stitch when completed will form a circle. The restoration of the function of the muscles of the pelvic floor is the great object of all surgical operations, and union by primary inflammation is the great desideratum.

The first step in the technique of surgical repair of perineal lacerations is to stop hemorrhage; second, thorough asepsis of wound, neighboring parts, utero-genital tract, vulva, rectum, thigh, nates, abdomen, bladder, rectum empty and at rest; third, proper introduction of sutures forming the arc of a circle, aseptic with an aseptic needle and hand, wound irrigated with hot aseptic water, all interposing clots removed, lips of wound placed in apposition by traction on sutures. Sutures should not be tied too tight for fear of congestion, strangulation of tissue, and stitch abscess, the lowest suture tied first, and with each subsequent suture use the running tie so as to more completely coaptate the lips of wound and avoid superficial sutures. The last stitch should be protective in normal tissue above the rent to take tension from the last stitch in the laceration. All minor rents of utero-genital tract internally or externally, or of perineum, should be sutured with aseptic catgut to prevent foci of infection. Patient's limbs (knees) must be gently bound together with a

bandage, and the seat of traumatism placed at rest to prevent tension, traction on stitches, and separation of lips of wound. Should the laceration extend through the mucosa and skin to center of ischio-perineal ligament, or through the labiæ, or involve the anterior commissure, aseptic catgut would be preferable. Should the laceration extend through perineal body into or through the sphincter ani, then aseptic silk or wormgut or silver wire should be used, as more strength, tension, and time are or may be required in healing the wound, and the sutures would not be absorbed should it be necessary to retain them seven to ten days; besides, the sutures should be placed catching the ends of the sphincter, the levator ani, transversus perinei, and bulbo-cavernosus muscles. If rent extends into the recto-vaginal septum the stitches must first be placed from the vaginal side, ends tied on the rectal side and brought out at anus, then the perineal stitches applied as above, and technique completed as in any other perineal laceration. Bladder must be catheterized every six or eight hours to prevent tension and vesical tenesmus. A tight-fitting binder with a pad between it and the abdomen will cause descent of womb and tension on the sutures. Patient should not move except when lifted by the nurse, and herself, bed, linens, and nurse must be aseptic in all the details of treatment. If the lochia become offensive a hot aseptic irrigation, *pro re nata*, will be highly essential.

To the physician who knows how to do aseptic work in all its details success as a rule will crown his efforts, and the old adage that a good workman never quarrels with his tools is doubly true in the repairs of injuries to the perineum.

In conclusion, no physician should be allowed to attend a "case of labor" if he is incompetent to surgically repair an acute perineal laceration. When ignorant midwives and ignorant and incompetent graduates from our medical schools are debarred from practice by a higher standard of medical education, or State legislation, then there will be few chronic

perineal lacerations for the pelvic surgeon to treat. The irregular quacks have been driven from Kentucky. Now it is right and just that the "regular quacks" be eliminated.

Statistics show that twenty-five per cent of primiparæ receive lacerations of the perineum. Yet we often hear physicians say that in a midwifery practice of ten or thirty years they have never seen a cervical or perineal laceration. They tell the truth in part—they are afraid to look for them, and if found they do not know how to repair them; and patients after an incomplete recovery go to some competent surgeon who does find them and give the proper surgical treatment.

DISCUSSION.

DR. R. T. RAMSEY, London: I think the doctor deserves a vote of thanks for the able paper he has given us, and for the great pains that he has taken in showing up the anatomy of this important subject and the dangers we are to avoid in such cases. I think in every case of labor we attend, after the third stage of labor has been passed successfully, the index finger should be inserted into the rectum and the perineal body carefully examined to find if it is unwieldy. From the practice I have had (although very limited as compared with some), I am pretty well satisfied it is a good thing to pass the index finger upon the usual rent, and unless there is considerable tear to the second or third degree I would not recognize it. We are too apt to suppose that there has not been sufficient rent in the perineal body to demand operative interference. Any rent from half an inch to an inch we consider will probably heal without repair. I think it is an important point to insert one finger into the rectum and examine carefully the perineal body. I think it is well to come prepared in every case of labor. I know physicians in my locality when they have happened to be out hunting and a case comes up and they are called in they are not prepared. They do not make a routine practice of using ergot, but rely entirely upon their hands to give them the assistance necessary. I have taken the advice of the best authorities, and go prepared for any emergency.

If I am out in the country ten miles, I feel relieved if I have every thing that I might use in case of an accident.

This is a very important subject, and any of us may meet with a case to-morrow, and we should know exactly the responsibility that devolves upon us in these cases. It is an important point that the doctor has laid before us to be profited by, and if we go away determined to learn that one point and be able to cope with these accidents, I think we shall be paid for our visit to Shelbyville.

VAGINAL HYSTERECTOMY: REPORT OF A CASE.

By Arch Dixon, M. D.
Henderson, Ky.

I wish to report the following case for two reasons: First, because I attempted to do the operation by enucleation, and second, because of an unusual symptom which developed after the operation, of which I shall speak later on. There can be no question of the fact that total extirpation is the treatment for cancer of the uterus. For this there are many reasons. First of all, cancer of the uterus is primarily a local disease which develops by progressive invasion of cervical tissue until the lymphatics are involved and general infection takes place. To prevent infection by means of the lymph channels it is absolutely necessary to radically remove all diseased tissue, and this can be done only by hysterectomy, either vaginal or abdominal. It is a nice question to determine just when invasion through the lymphatics will occur, but it is safe to say that operation is demanded as soon as the diagnosis is made. Some time last winter I received a paper giving the technique of an operation for the removal of the uterus by the vaginal route, simple and bloodless. The paper was by a Dr. Pratt, of Chicago. The method described by him was to seize the cervix, draw down the uterus, make a circular incision just above the the external *os*, and then peel the uterus out. This was accomplished in a few minutes without the use of the ligature or forcipressure, and with no hemorrhage. In the issue of February 10th of the Medical News, Dr. Robert Reyburn, of Washington, reported a case of vaginal hysterectomy for carcinoma of the uterus performed by enucleation without hemorrhage.

The patient was an old negro woman, sixty years of age, and the doctor seems to have met with no difficulty in freeing the uterus of its peritoneal envelope and removing it without hemorrhage; there was little shock and the recovery was good.

I did not find the matter such an easy one in the following case: Mrs. C., of Pembroke, Ky., came to me on February 3, 1894, for diagnosis of a uterine trouble which had been pronounced cancerous by her family physician, Dr. Robert Paine, in July last, the time of his first examination. During the fall she went to Nashville and consulted Dr. Briggs, who advised immediate operation, which was refused. Upon examination I confirmed the diagnosis of Dr. Paine, and advised total extirpation of the uterus, although the disease had advanced so far as to almost render the case inoperable; the uterus was still movable by the finger in the rectum, but the walls of the vagina were involved anteriorly and posteriorly. Her general condition was good, and there seemed to be no involvement of the lymphatics. Operation was refused and she returned home. About the 1st of March I received a letter from her, stating that she had determined to place herself in my hands for operation, and would be in Henderson on the 5th.

Upon arrival she was taken at once to the sanitarium. On the 6th the uterus was thoroughly curetted and packed with iodoform gauze, and was afterward irrigated twice a day with one in five thousand sublimate solution.

On the morning of the 10th I did vaginal hysterectomy, assisted by my son, Dr. Arch Dixon, jr. Owing to inflammatory adhesions it was impossible to draw the uterus down, and it was necessary to incise the perineum and perineal body in order to have room for work. Anterior and posterior incisions were made, and, not having faith in the bloodless operation as described by Dr. Reyburn, I deemed it prudent to tie off the uterine arteries. Separation of the uterus from

its posterior attachments with the finger could not be accomplished, owing to strong adhesions; the knife was therefore used and the tissue dissected back for an inch or more. The finger was again introduced and the peeling process proceeded without further difficulty as far back as the fundus. Anteriorly the difficulty was much greater, as the uterus and bladder were so closely connected as to be almost inseparable, and division had to be accomplished by actual dissection with the knife. On the sides the detachment was comparatively easy. The operation was an exceedingly difficult one, due to the fixation of the uterus. The detachment of the uterus from the bladder had to be conducted with minute care and delicacy, and necessarily occupied much time. Notwithstanding the uterine vessels had been secured, I thought it prudent to adjust clamps before the entire removal of the womb, as the patient's condition was only fairly good and a loss of blood might prove serious. The patient was put to bed with a pulse of 110; reaction was good, temperature reaching 99.5° four hours after operation. There was a good deal of nausea and vomiting for two or three days. On the third day the clamps were removed, the patient became restless, and her pulse ran up to 140. Hemorrhage was suspected, but examination revealed no further indication of it. Delirium came on, and notwithstanding the temperature did not at any time reach above 99.5° she continued in a state of acute mania for ten days, when she regained her faculties as suddenly as she had lost them. This is the second feature to which I wish to call attention. After the third day there was neither nausea nor vomiting; temperature almost normal; pulse from 80 to 100, but the mental trouble was persistent. The patient imagined all sorts of things; that she had been taken away from her home for no good purpose, and was being kept in confinement to prevent her return. She became so violent at times that it required the nurse and several assistants to prevent her getting out of bed. She slept very little, but her

appetite was good. This condition lasted for about ten days, when, as said before, she recovered her mind. There was no remembrance of any thing that had occurred. The time intervening between the beginning of the anesthetic and the return of her mental faculties was a total blank.

Her improvement after this was without note, and she returned to her home in Pembroke on the 6th of April, where she continued to improve, and with the exception of a rather obstinate cystitis is in fairly good health.

In this case the broad ligament was found to be involved, and a return of the carcinoma may be expected.

In regard to enucleation of the uterus, I do not question Dr. Reyburn's operation, but the case seems to have been a particularly favorable one. Owing to the age of the patient there was doubtless a relaxed condition of the peritoneum enveloping the uterus. But in younger subjects, and in those in which extension of disease has produced fixation of the uterus, I am inclined to think the procedure not such an easy one as he described it. I should deem it at least prudent to secure the uterine arteries before entire removal of the womb. I am at a loss to account for the mania, beginning as it did on the third day after operation and continuing as it did for ten days. It began suddenly and violently, and ended in the same way. It could not have been due to the anesthetic (chloroform), nor to opiates, for she had only a few hypodermics of one eighth grain morphia, and they were given after the inception of the mania.

She did not suffer greatly from shock, as reaction had taken place in a short time after she was placed in bed. Her pulse ran up to 140 on the third day, but was soon reduced to 90 by the use of strychnia and trinitrin, nor did it again rise above 115. This feature of the case was one of great interest to me, and I should like to be able to assign a reasonable cause for it.

The cases of insanity following surgical procedure which so far have been reported are few, and the cause is still *sub*

judice, although it is contended that in those forms of insanity following operations, shocks, diseases, or anesthesia, the true cause if carefully sought would usually be found an hereditary or an acquired predisposition, or both. Savage, of Bethlehem Royal Hospital, took this ground in 1887 in a paper read before the British Medical Association on "Insanity Following the Use of Anesthetics." He dwelt upon the fact that agents which caused temporary derangement of the mind might give rise to permanent derangement. Causes which could produce delirium, or allied states, could start insanity. This insanity often assumed a delirious type. The insanity might be transient or persistent, and end in progressive dementia or in general paresis. The opinion held as to the pathology of these cases was, that the anesthetic depressed the activity of the higher cerebral mechanism and left the lower to operate uninhibited. Of six cases, two recovered.

H. C. Wood, in an article on "Insanity After Acute Surgical and Medical Affections" (University Medical Magazine, December, 1889), holds that the fundamental condition in these cases of insanity is an altered state of cerebral nutrition. This altered state of cerebral nutrition may be caused by any disease, accident, operation, or mental worry. He proposed the name of Confusional Insanity for alienation following such cases. Five cases were reported, all of which recovered.

Charles D. Filibrown, writing from Hamburg to the American Journal of Obstetrics, January, 1889, mentions seven cases. Four of these followed gynecological operations of some kind. One died, one got well, and two had nearly recovered with only occasional spells of short duration of hypochondriasis or excitement. The other three cases of insanity followed the rupture of some form of abdominal cyst—ovarian in one, pyosalpinx in a second, and extra-uterine in the third. Of these two made good recoveries,

while the third apparently got well, but subsequently committed suicide two months later. In the first three cases no hereditary tendencies to insanity could be discovered. With regard to the pathology of these cases, the author thinks they are of a reflex character. The peripheral irritation arising from the operation, or the rupture of a cyst, is reflected upon the brain and thus operates in overthrowing the mental balance.

At the meeting of the German Gynecological Society for 1888 (*Centralblatt für Gynecologie*) Werth gave an account of six cases he had met. The form of insanity was maniacal in one, melancholic in five. Three of the six recovered. He did not believe that their psychoses were functional disturbances produced by mutilation of the sexual organs. He refers these cases back to their psychological causes as found in other cases of insanity. In this view Saenger, Martin, and Ahlfeld concurred. He further held that operations on the genital tract did not cause insanity more frequently than other surgical operations. All seemed agreed that the predisposition to the insanity already existed, and that the surgical procedures only act as the exciting causes.

R. Barwell, at the Clinical Society of London (British Medical Journal), reported a case of insanity following ovariotomy. The operation was performed on October 28th, and the patient exhibited mental derangement November 3d. By November 7th she had to be secured. There was very marked insomnia, which was best relieved by ice-bags to the head. She had recovered, and was discharged well on December 29th. Mr. Barwell stated that in conversation he had heard of several cases, as follows: One by Keith, after hysterectomy; two by Thornton, after ovariotomy and hysterectomy; one by Dent. Mr. T. Bryant mentioned two cases of insanity after ovariotomy in his practice. Both got better. Mr. Doran reported a case after ovariotomy in which mania was developed. The patient was still deranged at the

date of the meeting. Mr. Meredith had met with a case of acute melancholia that came on four weeks after the removal of a tumor weighing seventy pounds. The patient was insane for two months and suddenly got well. There has been no return after four years.

Edis also mentioned a case of melancholia following ovariotomy. The patient recovered and continued well. In dealing with the pathology Mr. Barwell remarked there was not always a family history of insanity. In his own case there was no hereditary taint. If it was an occasional sequel of surgical operations it had not received much attention. Though disturbance of the genital tract seemed to offer the easiest explanation, he did not think it was the real exciting factor. Altogether he thought it was to be explained on the grounds of mental anxiety, loss of blood, exhaustion, etc.

The above cases are the first definite reports in British practice on insanity following operations on the female genital organs. Among the first cases on record in America of mental disturbance in women following surgical proceedings on the genital tract are the following:

In 1887 three cases of insanity following gynecological operations were reported by E. J. Ill, of Newark. In 1888 F. J. Shepherd, of Montreal, read a paper before the Medical Association of Canada (American Journal of Medical Science) in which a detailed account of six cases of insanity following surgical injury was given. Three of the six recovered. No suggestions as to the pathology of the cases were offered. T. Gaillard Thomas, in 1889, read before the New York Academy of Medicine an article on "Insanity After Gynecological Operations." He recorded six cases in his practice, three of mania and three of melancholia. Four of the six died, one recovered and was improving at the date of the writing. No distinct heredity could be traced. In one case the attack was very sudden; in the remaining five there were distinct prodromata. During the discussion on the paper

twelve other cases were reported. No opinion as to the pathology of any of the cases was offered.

There can be no doubt that operations on the sexual organs in those with hereditary taint are the exciting causes of insanity, but it may also be said that operations on the genital tract, in those who have no hereditary taint or predisposition, sometimes produce insanity.

The case reported by me was the first case of insanity which has fallen under my observation as following any surgical operation whatever, and was therefore of great interest. It began suddenly, and the recovery was sudden. There was no hereditary taint which could be traced. Certainly this subject should be one of interest to all gynecologists, since we find such authorities as Joseph Price, of Philadelphia, Landon C. Gray, of New York, George H. Rohé, of Baltimore, Marie B. Werner, of Norristown Insane Hospital, and others advocating operations on the sexual organs for the cure of insanity.

DISCUSSION.

Dr. W. H. Wathen, Louisville: I do not think the operation ought to be done if there is any fixation of the uterus caused by extension of the malignant disease to adjacent structures. If the disease has passed out of the uterus, is in contact with the broad ligament or with the bladder and connective tissue and peritoneum, then an operation ought not to be performed, for the reason that it is far more dangerous than where the fixation does not exist; and, if the patient recovers from the immediate effects of the operation, necessarily the cancerous infiltration in the tissues will rapidly cause a recurrence of the disease, and there will be no prolongation of life. I have never operated upon a patient where there was cancerous infiltration into the tissues around the uterus or any cancerous condition of the pelvic glands, and while I do not condemn others for doing so, I have never given my consent to this operation.

As regards the enucleation of the uterus without the ligation of the uterine arteries, it has been done, and in many instances

it may be done by careful enucleation without serious hemorrhage. You may, however, have hemorrhage in this enucleation from small vessels that will require torsion or the application of a small ligature. This operation has been done by French surgeons. You are probably aware of the fact that the French surgeons are great people to do vaginal hysterectomy. Not only in malignant disease do they always adopt the vaginal method, but in fibroid tumors as well. Operations performed in this country and in England are generally by the supra-vaginal method. I recently met in Washington City a distinguished French surgeon, who was surprised to find that surgeons here performed supra-vaginal hysterectomy instead of vaginal. By the supra-vaginal method even with a large tumor you may sometimes by careful manipulation enucleate the tumor, take it away without ligating the uterine or spermatic arteries, by hugging the uterus closely and pushing the vessels out of the way. In those cases where the uterus is not involved in cancerous disease, where the organ is removed for some neurotic trouble, as is now the custom of many surgeons, you may possibly enucleate the uterus and leave the peritoneum intact. If you take the uterus away, remove the ovaries and tubes also if you want to get good results.

DR. I. A. SHIRLEY, Winchester: Just when to do vaginal hysterectomy in cancer of the uterus to obtain the best results seems to be an unsettled question even to this day among gynecologists. It is true they tell us that the "golden moment" is when the uterus is movable and the disease is confined to that organ; but that the extent of the invasion can not always be told before operation is illustrated by a case recently seen.

A most excellent lady, aged thirty-seven, the mother of six children, was thought to be a good case for total extirpation, as but a portion of the cervix only seemed to be involved, and the uterus was quite movable. She was sent to a distinguished, experienced operator, who confirmed the diagnosis and requested a friend to witness what he predicted would be an ideal case for entire removal. He, however, found such invasion into the cellular tissue anteriorly as to render total extirpation impossible without endangering the bladder. The operation, therefore, was abandoned after removing one and one half inches of the anterior cervical lip and stitching the vagina to the cut surface. She

was sent home in due time, doomed to recurrence and a speedy death. Within three or four months she became suspicious of pregnancy, but the operator wrote that it was impossible, that the symptoms were the result of the invasion of the corpus. When I informed him of the unmistakable evidences of pregnancy, he replied that nothing short of a "cesarean" or a "Porro" could possibly deliver her. I was called by her physician, ten miles away, to come prepared for any thing. I went, accompanied by two professional friends. She had been in labor for ten or twelve hours. We found the *os* dilated to about the size of a silver dollar, the posterior half of which was free, the anterior half composed of an unyielding, indurated mass encroaching closely upon the bladder. It was the unanimous opinion that after incising the unyielding portion delivery could be accomplished. After anesthesia and the introduction of a catheter, it was feared incision of the mass would wound the bladder, and this operation was consequently abandoned. She was delivered, however, with but little delay and trouble with high forceps, after slight digital dilatation, of an average size, living girl baby. A profuse hemorrhage from numerous lacerations of the indurated tissue was controlled by a gauze tamponade of uterus and vagina. There can be no question of the trouble being malignant, in my judgment, supported by that of a competent gynecologist. If extirpation could have been accomplished when attempted a year ago, would life have been prolonged, to say nothing of the blasting of the pleasures of maternity? It is certainly very interesting as teaching the uncertainty of the extent of invasion, and on account of pregnancy and delivery of a cancerous uterus so far advanced as to prohibit vaginal hysterectomy.

DR. J. G. CARPENTER, Stanford: When a woman about the age of forty-five has a leucorrhea or a hemorrhage continuously from the uterus, and the womb is enlarged beyond its natural length and diameter, it is suspicious and highly indicative of cancer. Even the microscope itself fails at times to detect cancer cell from the curettings of the womb for a specimen. It would be better surgery to remove the suspicious uterus than to let the woman go on to develop cancer and to die. When a woman at forty-five years of age has fibroids or fibro-cystic tumors, they are prone to undergo sarcomatous degeneration

and exhaust the patient by hemorrhage, sepsis, pressure, and other complications. At that period it would be conservative surgery to remove the uterus rather than allow it to remain and the patient risk all the chances of constitutional infection.

DR. ARCH DIXON, Henderson (closing the discussion): I fully agree with Dr. Wathen in regard to what he said about operable and inoperable cases. This case, as I stated in my paper, was almost an inoperable one, and a statement to that effect was made to the patient, but she insisted upon an operation being done. Through the rectum the uterus could be moved, but as I said, in doing the operation the uterus was so fixed that it could not be pulled down at all, and perhaps, according to Dr. Wathen's idea, it might have been considered an inoperable case; but under the circumstances, and at the request of the patient herself, I did the operation.

In regard to the statement that enucleation of the uterus is done quite frequently, I think Dr. Wathen is mistaken. He says a great many of these operations have been done by French operators. If they have, I have never heard of them. The first operation of this kind was done by a French surgeon years ago, in which he attempted to enucleate the uterus. Instead of doing that he dissected out and left part of the uterine tissue attached to adjacent parts. Dr. Pratt's operation (of Chicago), done six or eight months ago, was followed by the operation of Dr. Reyburn, and later by an operation done by Lanphear, of Kansas City, in which the uterine arteries were tied off. If there has been any such operation done by French surgeons, I have failed to notice it, notwithstanding Dr. Wathen says they have been frequently done and reported. If he can show me the literature on the subject previous to the time quoted by Dr. Pratt, I would be obliged to him.

In the Medical News the whole subject is discussed by Mundé, of New York, in which he makes similar statements to my own.

I was interested in this sort of case. By simply making an incision anteriorly and posteriorly, or a circular incision around the cervix, the uterus, by the finger of the operator, is peeled off from the peritoneal envelope and taken out without any hemorrhage. This is a great thing to do, and it is a good thing for the patient as well as for the surgeon. It prevents shock, hemor-

rhage, and saves time, and time is a great thing when a patient is under an anesthetic.

In regard to the case reported by Dr. Shirley, the surgeon called in in that case ought to have made a vaginal hysterectomy. It seems to me the case demanded it. Some years ago we had a case in Henderson in which I diagnosed carcinoma of the cervix. In consultation with another physician it was decided to call Dr. Thad. Reamy, of Cincinnati, to see the case. Dr. Reamy came down and confirmed my diagnosis. The uterus was perfectly movable; the vaginal walls were not involved, yet for some reason totally unexplainable he did not operate. To my mind it was a case which demanded operation. It was a case much easier of operation than the one reported, and it seems to me he ought to have operated. However, he was the best judge of that, much better perhaps than we were.

My statements are with reference to enucleation of the uterus only.

PELVIC DISEASE AND ITS RELATIONSHIP TO INSANITY IN WOMEN.

By John Young Brown, M. D.
Lakeland, Ky.

The alienist, as well as the general practitioner, recognizes the influence of the sexual functions as a factor in the production of psychical disturbance in women. Even within the limits of physiological health the influence of this function is clearly seen. The various perversions of the senses during pregnancy, the functional neuroses of menstruation, and the psychical disturbances of the menopause and puberty are clearly illustrative.

While all agree that many neuroses, psychical depression, and reflex nervous symptoms can with perfect safety be charged to functional and pathological disturbances of these organs, it is exceedingly questionable whether pelvic disease *per se* ever results in actual insanity. The question of operative interference in these ill-defined cases of so-called "reflex insanity" is one which has been freely discussed both by surgeons and alienists of this country and Europe.

After a careful review of the literature of the subject, and an analysis of the cases operated on and the results obtained, I think I am safe in saying that the consensus of opinion is decidedly against operative interference when the neurosis is the only indication for operation. And I must confess that my own experience in cases of this character has developed nothing to lead me to a different conclusion.

Greig Smith, in discussing the question of operation in cases of insanity, says: "The proposal of Goodell to remove

the ovaries from all female lunatics who have abnormal sexual propensities can not be regarded seriously, any more than we should regard castration under similar circumstances in the male. Certain cases of mania, in which the attacks come on solely or chiefly at the periods and in which the sexual element strongly predominates, might be properly treated by removal of the appendages. In puerperal mania, particularly if the disease has recurred after a second confinement, the removal of a portion of the tubes to prevent future pregnancy, rather than complete removal of the appendages, is indicated." In this day of conservatism, with the knowledge we have of the symptoms and pathology of pelvic disease, the indications for an operation in a given case are to be based on the local diseased condition of the organs and the symptoms resulting therefrom, and not from any supposed reflex symptoms. I hold that no surgeon has a right to remove the uterine appendages from a female lunatic unless there is present a pathological condition which would warrant an operation in mental health.

There is equally as great a proportion of insane women who suffer from pelvic disease as there is among a like number of sane females, and I see no reason why this unfortunate class, when their condition demands it, should not be entitled to the same relief afforded by operative interference as their sane sisters; and I am glad to say that the profession is rapidly coming to an appreciation of the necessity for such work among the insane. Dr. George H. Rohé, of the Maryland Hospital, and Dr. Manton and Dr. Alice Bennett have all done excellent work of this character in the institutions over which they so ably preside.

The time has come when work of this kind can no longer be neglected in our own asylums, and for asylum superintendents and asylum physicians to say that the indications for both major and minor gynecological surgery are not present in their insane patients, just as they are among the sane

patients of other hospitals, is to admit that they neglect to look for them or fail to recognize them; and in this they put themselves in the same category with the "country doctor" who says that he has delivered thousands of women and never had a lacerated perineum. From my own observation at Central Kentucky Asylum, my opinion is that examination will show that fully 25 per cent of the female population of our State institutions suffer from some form of pelvic disease.

This being the case, it is just as scientific to urge that we neglect or allow to run their course our cases of pneumonia, bronchitis, and other medical diseases, as it is to allow these equally important surgical troubles to go without treatment; and while I admit that conservatism should be our guide in all operations of this character, it is better to err on the operative than on the non-operative side of the question. In the work I have done at Central Asylum I have been fortunate in having the hearty support of our able superintendent, Dr. H. K. Pusey, and the Board of Commissioners of the institution, five of which board are prominent surgeons and members of this Society. In all the cases here reported the indications for operation have been the disease, and not the symptoms, except in Case No. 4, one of nymphomania, which I shall describe at length. Case No. 3, while it can not be classed as a pelvic disease, is of interest, and I have included it in this report.

Strict asepsis has been aimed at in each operation. The patients were all given a week's preparation, which consisted of a careful regulation of diet and two warm baths daily, the abdomen being carefully scrubbed at each bathing with soap and brush. The intestinal canal was thoroughly washed out with salines prior to operation. All sponges, instruments, and dressings used were carefully sterilized by heat; silk was used for pedicles, and silk-worm gut for closing abdominal wounds. Irrigation and drainage were used in one case only.

CASE 1. Josephine H., aged thirty-four, single, was committed to Central Asylum January 6, 1886. History of case from date of admission to December 10, 1891, is without interest. Diagnosis, chronic delusional insanity. On December 10, 1891, she was suddenly seized with an attack of catalepsy, in which condition she has remained almost constantly since. On January 15, 1894, in the presence of the house staff, an anesthetic was administered, which resulted in complele muscular relaxation as she came under its influence; as soon as the anesthetic was withdrawn the muscular rigidity gradually returned. She was a chronic sufferer from profuse and uncontrollable metrorrhagia, and, as she was growing daily weaker from the constant loss of blood, the removal of the appendages was decided on. On the 8th day of May, 1894, I removed both ovaries and tubes; ovaries were found of the chronic cystic type. Patient went on the table in a cataleptic condition, and although ether was administered there was at no time complete muscular relaxation, the abdominal muscles remaining partially rigid during the entire operation. Patient made an uninterrupted recovery, and has had no hemorrhage since the operation, but is still in a profound cataleptic state. I shall shortly report this very interesting and unusual case in detail.

CASE 2. Henrietta K., German, aged forty-two, single, was admitted to the Asylum September 20, 1880. Diagnosis, chronic delusional insanity. The records of her case show that she has for years suffered from metrorrhagia, and within the last two years has been constantly flooding. On examination I found the uterus enormously enlarged, and through the abdominal walls the nodulous fibroid growth could be distinctly felt. Supra-vaginal hysterectomy was decided upon. On May 18th, assisted by the house staff, Dr. J. W. Guest, and Dr. C. C. Godshaw, of Louisville, the latter being her family physician, and Dr. Arch Dixon, jr., of Henderson, I opened the abdomen and removed the enlarged uterus and

appendages. There was a cyst of the left ovary as large as a hen's egg. There were no marked adhesions, and the various steps of the operation were accomplished without difficulty. In stripping the bladder from the uterus to adjust the noeud I was so unfortunate as to tear the viscus to the extent of half an inch. This was carefully sutured with silk. The abdominal cavity was copiously irrigated with hot sterilized water until the water came away clear. A glass drainage-tube was placed in Douglas' pouch, and the abdominal wound closed. On account of the bladder wound, a soft catheter was inserted and tied so as to retain it in the bladder. The patient was put to bed with a pulse at 96. She reacted nicely, there being comparatively no shock. The drainage-tube was removed in forty-eight hours. She had suffered no pain, and required no narcotic. Her pulse was never above 96, and she has had no rise of temperature. The stump has come away, and I think I can safely say that she is practically well, this being the twentieth day after operation.

CASE 3. Mary S., age thirty-six, admitted to the Asylum July 9, 1891. History of case from date of admission to date of operation is without interest. On February 12, 1894, she was seized with violent vomiting, and complained of severe colicky pains in the abdomen. On examination of the abdomen I discovered a tumor freely movable, somewhat larger than a large orange, situated just under the umbilicus. The case was afterward seen by Drs. H. H. Grant, Wathen, Satterwhite, Dugan, and Dixon; they all advised exploratory incision. On March 10th I opened the abdomen and removed the growth, which proved to be quite a good-sized cyst of the mesentery. Patient made an uninterrupted recovery, and is now in excellent physical health.

CASE 4. Clara M., single, age twenty-six, was admitted to Central Asylum May 4, 1891. She was a woman of unusual intelligence and well educated; at the age of sixteen she

began to masturbate and show erotic symptoms. In spite of careful watching by her family she would solicit intercourse, and twice became pregnant; contracted syphilis, and as a last resort was sent to the Asylum. On admission her condition was pitiable; she was pale, anemic, had frequent attacks of hystero-epilepsy. She masturbated incessantly. The case was of such a desperate and loathsome character that I suggested the removal of her appendages as an experiment, thinking perhaps it might benefit her. On the 8th day of August, 1893, I operated, removing both ovaries and tubes. Tubes and ovaries were normal. She recovered rapidly from the operation, but instead of being benefited by it, I candidly believe it aggravated her condition. She continued to practice masturbation until her death, which occurred January 7, 1894, from pneumonia, six months after operation.

DISCUSSION.

DR. L. S. MCMURTRY, Louisville: The writer makes a statement that I have no doubt will be borne out by the testimony of other careful observers, namely, that one fourth of all the insane women in our asylums are subjects of pelvic disease. The essayist has done full justice to the work that has been done in this country by Prof. Rohé, of Baltimore, Dr. Manton, of Detroit, and Dr. Bennett, of Norristown, Pa. The point to be made and which Dr. Brown plants himself upon is one that the facts will bear out, namely, that there are a large number of women in our insane asylums that can be rescued and restored to health by legitimate surgery; at the same time operations for functional neuroses, such as hystero-epilepsy, and all those various forms of functional disturbances of the nervous system, are illegitimate, and nothing will come from them, as has been demonstrated. One of the greatest sources of discredit thrown upon pelvic surgery has come from operating upon cases of functional neuroses. There are a large number of cases in our insane asylums that deserve to be treated by operative procedures, just the same as sane women are operated on and are relieved.

The essayist has reported a most creditable case of abdominal hysterectomy with a beautiful result, and I want to say a word in confirmation of the position taken. It is a well-known fact to all who are familiar with these cases that fibroid tumors of the uterus are known to produce insanity. Since I have been standing here a gentleman has come into the room with whom I was associated in the case of a lady for whom I did an abdominal hysterectomy for fibroid tumor, and who before operation and during her convalescence was insane with a deceptive form of insanity. A certain proportion of women with fibroid tumors of the uterus are insane, and they can be cured by surgery.

DR. J. G. CARPENTER, Stanford: I wish to indorse the paper of Dr. Brown and the work he has done, also the work that has been well done in other asylums in this country. We have insanity following diseases of the eye, nose, throat, and ear, and the curing of these diseases will cure the insanity. We have even insanity resulting from very bad strictures of the urethra. There are women in our asylums with diseased appendages, who, if operated upon, would get well.

Dr. Alice Bennett, of the Norristown Asylum, has operated upon these patients with most satisfactory results. I know of four women to-day upon whom she has operated who are at home perfectly sane with their families. One patient, who was a violent epileptic, is now rendered harmless. One of her cases died of a purulent peritonitis. I hope the good work will go on, as surgeons in removing the diseased appendages will give these poor women their only chance for health and a sound mind again.

DR. A. M. CARTLEDGE, Louisville: I rise to congratulate the author upon the excellent manner in which he has dealt with this very delicate subject. First of all, I think the strong point he has made in this paper (and one I hope he will abide by) is this, that in following up this subject and dealing with this class of cases there must be obvious disease before these patients are subjected to an operation. With this to go by, there is no reason that I know of why these unfortunates should not receive the same benefits from surgery that their more fortunate sisters do who are suffering.

Another thing, the doctor should be congratulated upon the most excellent results he has obtained. I confess that in doing

abdominal surgery, that I am very much afraid to operate on patients of this class, and I believe I am borne out in this fear by the experience of other gentlemen who have done many abdominal sections among the insane. It is an extremely unfortunate class of patients to operate upon. As a rule they do badly, which is one more argument in favor of the rule that they should be operated upon only for obvious disease.

I am fully in accord with the view taken by Dr. McMurtry, that abdominal surgery has been brought into disrepute by operations done on neurotic cases where there was not clear evidence of disease.

DR. JOHN G. CECIL: It has been generally conceded of late years that the operation of laparotomy for the removal of the appendages for neuroses has been unadvisable and followed by poor results. It strikes me the best argument that could be adduced in favor of the position taken by Dr. Brown would be a close analysis of his cases. In the consideration of the first case, the one in which the ovaries and tubes were removed for menorrhagia, with a history of chronic delusions preceding, the doctor did not by his operation prove that these delusions were the result of intra-pelvic disease, as the history goes to show the delusions continued; yet the poor woman was relieved of a disease which in all probability would have terminated her life.

The last case reported by him, in which the ovaries and tubes were not diseased, is a strong argument in favor of non-operative procedures in strictly neurotic patients.

DR. WM. H. WATHEN, Louisville: There can be but little dispute that these women should be treated just as other women who are treated for pelvic disease and are benefited. They are so insane as to bring about a condition from which they can not be benefited. If they can be controlled and kept in bed and managed as other women, they ought to be operated on for obvious pelvic disease the same as sane women, nothing more, nothing less. It has been clearly demonstrated that the operation of removal of the uterine appendages for nymphomania has not been followed by good results. It may be, that if these operations were extended further and the uterus removed, the results might be better. I doubt this, however, for the reason that it is probable in most of these cases there is a cerebral

lesion controlling the patient that would not be relieved or even modified by the removal of both the uterus and the appendages.

DR. ARCH DIXON, Henderson: I wish to offer my congratulations to Dr. Brown for his exceedingly valuable contribution, and I wish to say that he is a pioneer in this work among these unfortunate women in our asylums. If there has been any such work done in the asylums of Kentucky before, it has never been reported. Dr. Brown differs in his conclusions from Dr. Rohé, and I think with good cause. It is a field that needs cultivating, and with such men as Dr. Brown beginning this work nothing but good can result from it.

DR. C. B. SCHOOLFIELD, Dayton: I believe these women should be given the same opportunity for recovery from pelvic disease as their more fortunate sisters. It is a very critical question for a man to determine in these nervous diseases whether he is justified or not in removing the appendages. The results, as a rule, have been rather unsatisfactory; that is, statistics show that in these neurotic cases removal of the appendages has not been followed by favorable results, but in those cases where there is obvious disease of the ovaries, where it is not a functional disease, as Dr. McMurtry has said, and the symptoms point to the appendages as the origin of the trouble, then I think we are justified in removing them, and I am glad the doctor has taken the ground he has in the paper in urging the removal of the appendages in these cases.

The reason I rise to speak in reference to this matter is because I had a case about six months ago in point. A woman, who had periodic mania of a suicidal character, cut her throat about the first of July last, and in one month from that when she menstruated again she ran away. Her clothes were found torn, and it was supposed that she had gotten into a reservoir. A third time she ran away. She was brought to me in July last, and I found the left ovary prolapsed, adherent, and evidently diseased. The fact that there was no neurotic history in the family led me to believe that the origin of the trouble was pelvic. I wrote to Dr. Richardson, of Columbus, about the case, and he recommended removal of the appendages. I had no means of obtaining any confirmation in this matter from any one of large experience. But on the first day of October I removed the ovaries, and at the end of three weeks the patient was well.

Since that time she has showed no symptoms of insanity whatever, is able to attend to her work, and does her own washing. Such results are unusual in these cases of neurotic trouble; but I think the results are all good where we have unmistakable evidence of pelvic disease and operate for its removal.

DR. BROWN (closing the discussion): I have nothing further to say, except to thank the Society for the generous manner in which they have discussed my paper.

CONSERVATIVE GYNECOLOGY.

By Julia Ingram, M. D.
Louisville, Ky.

The following is a synopsis of Dr. Ingram's paper:

Dr. Julia Ingram, of Louisville, read a paper entitled "Conservative Gynecology." The author took the ground that too many laparotomies are done upon women to-day. Women suffering from obscure uterine or ovarian troubles are daily submitted to the knife, and not a few are thereby sent to the undertaker, whose diseases might have been cured or whose lives might have been prolonged by conservative treatment. To open the abdomen is a sort of mania with some young surgeons, and they scour the country to hunt up cases that seem to be operable. It is hardly necessary to say that some of the patients so secured and so operated upon are victims to the inexperience of young ambition.

Of course, experience can be obtained only by practice; but experienced operators can always be found, and no tyro should attempt a laparotomy upon a human being who can not secure the counsel, attendance, and assistance of some master in this realm of surgery.

DISCUSSION.

Dr. Arch Dixon, Henderson: I agree with the authoress that there is too much tendency at all times for operations on women. I saw an operation for oöphorectomy by a specialist some two years ago. He removed the ovaries of a woman from Indiana, and if there was any thing the matter with them I could not see it. The woman complained of pain in the pelvic region,

and if the operation was done to relieve it, it was a failure. There are some men who, if they open the abdomen and find nothing, would not have the nerve to close it up again, but would remove the appendages. They would not acknowledge that they had made a mistake in diagnosis.

It is the tendency nowadays, as the essayist has said, for young doctors to hunt up such cases. They have a mania for opening the abdomen and removing the ovaries. I heard a gentleman say at the last meeting of this Society that the pendulum had swung beyond that, and that it was now coming back. With the younger men it is still swinging the other way. They do operations without making a proper diagnosis. Exploratory operations should be undertaken to find out what is the trouble.

A short time ago I saw a young doctor operate for the removal of an ovarian tumor. When he opened the abdomen it proved to be a floating spleen. It seems to me the average practitioner should be able to decide between a floating spleen and an ovarian tumor. He made the diagnosis himself, and invited several practitioners to see the operation.

I fully agree with the essayist that conservative treatment would save a great deal of suffering and perhaps the lives of a great many women. I know there are many specialists in gynecology who do not agree with me. This thing of conservative tinkering would seem to be beneath the notice of laparotomists.

Dr. John G. Cecil, Louisville: I have always pleaded for conservatism in gynecology. I have had some experience with gynecological work in an operative way that has been quite amusing. I believe there is a very large field for the hygienic and therapeutic treatment of diseases of women. I believe that too much work of the cutting kind has been done. I remember to have seen recently a prominent operator do an exploratory incision. He made an uncertain diagnosis. He felt he had something, but he did not tell us exactly what it was. After having made an incision, he pulled up the ovary and found what he said was a cystic condition of the organ. I do not believe, however, that this was the condition at all. It looked to me like a healthy ovary, but he, in this instance, did not have the nerve to put it back and close up the incision. Before doing so he touched it with the Paquelin cautery, and I asked him why he did so. He said if it were cystic the cautery would destroy it.

It would destroy the cyst wall and prevent a possible accumulation of material therein. Certainly an accumulation would not follow after using the Paquelin cautery. That was a conservative operation to my mind. The operator having discovered that there was nothing there which demanded a serious operation or removal of the organ, touched the cyst with the Paquelin cautery. I was glad to see him do this. I believe the day will soon come when more than this gentleman will have the courage to acknowledge that they have made mistakes, and that the exploratory incision has revealed nothing abnormal. If a man opens the abdomen and finds nothing, he had better close up the wound without further mutilating the patient.

DR. JOSEPH M. MATHEWS, Louisville: It seems to me that there are two sides to this question. We have heard one side. I must admit that there are a number of cases in which, unless operative procedure is undertaken, the patient would die. We must admit that from the time of McDowell to the present hundreds and thousands of women have been saved by abdominal section. Therefore the point comes up, not whether conservative gynecology is correct, but in what cases is it correct? You might just as well say, if a man has appendicitis, that you are to stop for a number of days and by conservatism find out whether or not the appendix is involved. The surgeon makes his incision, comes to a solution of the question, and saves the man's life. So with these other cases, if a diagnosis can not be made, and yet there is a condition, for instance, of pyosalpinx and you are dealing with pus, which means inevitable death, is not the physician or surgeon at fault if he does not practice aggressive surgery instead of conservative treatment?

In the question, Who shall do these operations? a good point was made by the essayist. I agree with Dr. Ingram that we have no right to permit inexperienced operators to experiment upon people; that only by a long course of careful watching and intense study are we qualified to do the operation or to correctly diagnose the case.

DR. JOHN A. LARRABEE, Louisville; I rise to say a word or two in answer to the remarks of the last speaker. I do not know how it is possible for a young man to do these operations who does not experiment. The question is where the age limit comes in. Who is the young man, and who is the old man? The

biggest fool I ever saw was an old man. I do not think it is right to condemn the young man and say none but experienced men should operate. If they do not experiment, I do not see how they are going to do these operations. It is presupposed, however, that they have had more or less training in this particular line in order to undertake operations.

DR. INGRAM (closing the discussion): In regard to who shall do these operations, it is very true that the young practitioner must have his first case, but he should have long and thorough training before any thing of the kind is undertaken. One point in regard to conservatism. It is culpable to allow a patient to die from lack of operation. If, after making an exploratory incision, the operator finds nothing to be removed, let him close the wound. Very little if any harm can come from making an exploratory incision. What we need in these cases is careful training in diagnosis. Let the diagnosis be carefully made before operative interference is resorted to. I would certainly trust a person to do these operations who has served a long experience as assistant to a good operator.

TONSILLAR HYPERTROPHY.

By T. C. Evans, M. D.
Louisville, Ky.

Of the physiology of the tonsil we know but little. If they in any way add to the comfort or the well-being of the human economy, the part they play is so infinitesimal or so obscure as to have eluded the researches of the physiologists. If their destruction or removal is followed by any deleterious effects, they are so insignificant or so remote as to have escaped the notice of both the clinician and pathologist.

Bosworth seems to have sized up the situation when he says: "I am disposed to think that the faucial tonsil in a healthy throat constitutes an organ of but trivial significance, either from an anatomical, physiological, or clinical point of view." From our present knowledge of the structure and functions of these organs, it appears that when in the economy of nature they play an appreciable part, it is always in the rôle of an offender, disturbing the peace and harmony of neighboring organs and tissues, and in various interrupting physiological processes.

Hypertrophy is by far the most common disease of the tonsil; it is essentially a disease of childhood and early adolescence, as we rarely find a case developing after puberty. The chief predisposing cause lies in that peculiar diathesis which has been described by Potian and others under the name of "lymphatism." Many of the writers on hypertrophy have mentioned scrofula as one of the principal causes of the disease; while it is undoubtedly true that we frequently see patients who are the subjects of scrofulous or

tubercular glands, who also have enlarged tonsils, but the percentage of cases is not too large to be accounted for by coincidence. Lymphatism also predisposes to hypertrophy of the pharyngeal tonsil, and the glandular tissue at the base of the tongue. I doubt if the lymphatic diathesis has any tendency to eventuate in the true tubercular or strumous condition. Among the most frequent exciting causes of hypertrophy may be mentioned the occurrence of scarlet fever, diphtheria, and measles. Some cases are apparently due to recurring attacks of catarrhal pharyngitis, but it is usually impossible to say whether the hypertrophy is due to the catarrhal inflammation or *vice versa.* It is most always a bilateral affection, marked unilateral enlargement being an indication of malignant disease or of syphilis.

Hypertrophy is not only a source of much discomfort and annoyance, but is productive of almost an unlimited amount of evil. While they are not usually painful in their quiescent state, they are often subject to exacerbation of acute inflammation involving the pharynx, rhino-pharynx, and even the larynx; they obstruct the respiratory process and prevent the proper oxygenation of the blood. This is especially true during sleep when they fall back and interfere with nasal respiration; the patient snores, is restless, and often the subject of night terrors; they mechanically interfere with deglutition; the presence of decomposing cheesy matter in the lacunæ produces fetor of the breath and derangement of the digestive functions, and in some cases causes an irritating cough or a persistent clearing of the throat; they are a constant source of danger from contagious diseases. It is a well-known fact that children with enlarged tonsils are peculiarly susceptible to the contagion of both scarlet fever and diphtheria, and that their chances for recovery from these diseases are much less than children with normal tonsils.

Catarrhal and suppurative inflammation of the middle ear, the condition of the chest known as "pigeon breast," most

cases of persistent mouth-breathing, and the expressionless face, symptoms until recently ascribed to enlarged faucial tonsil, are now known to depend very largely on obstruction in the naso-pharynx from adenoid growths. Just here I wish to digress from my subject to say that I am exceedingly skeptical in regard to the "habit" of mouth-breathing. That many people are persistent mouth-breathers is evident, but I doubt if they ever form or continue the habit except from necessity; consequently the use of any of the appliances that have been invented to prevent mouth-breathing only complicate matters by compelling the patient to exist on a diminished supply of air for eight or ten hours out of the twenty-four.

In regard to treatment, I think the members of this Society will agree with me in the statement that medicinal treatment, either local or constitutional, of enlarged tonsils offers so little hope of success as to be hardly worthy of consideration; that the use of drugs still retains a more prominent place in the text-book and the literature of this affection than the clinical facts will warrant may be easily explained by the proneness of all of us to pander in some measure at least to the patient's or parent's dread of cutting instruments; to their desire to procrastinate or altogether avoid an operation. But I have never been able to comprehend why many of the older writers and even some of the comparatively recent ones should have looked upon tonsillotomy with a degree of suspicion amounting almost to a superstition; why men who would have amputated a limb, enucleated an eye, removed a testicle or an ovary, performed a tracheotomy or craniotomy without a twinge of conscience, should have gazed upon that diseased and deformed enigma of the fauces with a kind of superstitious reverence and a fancy that they saw in it some peculiar evidence of creative intelligence, the removal of which would not only be a reflection on the Creator, but would sooner or later be followed by some dire

calamity, ranging all the way from impotence to insanity. Practically, then, the question of treatment of hypertrophied tonsils resolves itself into a discussion of the best and safest method of removal. Most common among the methods now in use may be mentioned: Removal by tonsillotome, the Mathieus and McKenzie instruments being the ones mostly used; removal with volsellum and bistoury or the volsellum and scissors; by cold wire snare; by the galvano-cautery snare, and their destruction by the galvano-cautery. For cases of simple hypertrophy without adhesions of the pillars of the fauces, removal with the tonsillotome is easy and perfectly safe. Personally I prefer the Mathieus instrument, which so nearly fills all the indications as to leave little to be desired. I rarely use an anesthetic, though it is sometimes necessary in young children. The use of cocaine does not obtund the small amount of pain that follows the incision, unless it is injected into the tonsil, consequently I seldom use it, the small amount of pain or discomfort following the cutting being in my experience less disagreeable than the effects of the cocaine. The bistoury has little or no advantage over the tonsillotome, and is not free from danger in unmanageable children or nervous adults. The cold wire snare is less liable to be followed by hemorrhage, but has the disadvantage of being hard to adjust, moreover the operation is exceedingly painful. The galvano-cautery snare is also difficult to adjust, but is less painful than the cold wire. It might prove a valuable instrument when it is necessary to operate on a hemorrhagic subject. The galvano-cautery is a most valuable apparatus for reduction or destruction of enlarged tonsils. The amount of disturbance from enlarged tonsils is not always in proportion to the hypertrophy. Tonsils may be very considerably enlarged and still not project beyond the pillars of the fauces. In these cases, in fact in all cases where the gland is so situated or is so adherent to the faucial pillars as to be inaccessible to the

tonsillotome, the galvano-cautery becomes almost indispensable. In operation with this instrument I fix the tonsil with hook or tenaculum, then with an electrode, bent at right angles to the handle to avoid injury to the pillars of the fauces, make four or five deep punctures in the tonsil. The pain is inconsiderable, and the reaction usually not great. The destruction is rather tedious; ten or twelve sittings are often necessary to get rid of the entire gland, which is of course quite an objection, especially in children.

The question of hemorrhage is probably the most serious one in connection with the surgery of the tonsils. With all that has been said and written in regard to this alarming and much-dreaded accident, it is surprising that there is not a single authentic record of a fatal case where the operation was performed in accordance with modern methods. It seems that all cases of alarming hemorrhage have occurred in the adult, and most cases have followed the operation with the bistoury.

DISCUSSION.

Dr. J. G. Carpenter, Stanford: The tonsil was made for a purpose, and as long as it is not diseased and does not interfere with any other portion of the body I do not believe in removing it. We must not go rabbit-hunting every time we see an enlarged tonsil. While there are constitutional causes, and the hypertrophied tonsil is one of the factors of deaf-mutism, we must cure the constitutional vice and the hypertrophy will take care of itself. Hypertrophy of the faucial tonsils is dependent upon local disease in the naso-pharynx, and if you cure the disease in the nasal chamber or in the vault of the pharynx, the hypertrophied tonsil will take care of itself. Time and again have I seen hypertrophied tonsils subside to normal without any treatment. By proper treatment of the disease, straightening the septum, removing the occlusion, crushing the third tonsil, and properly spraying with mild, soothing astringent applications to the naso-pharynx, hypertrophy of the tonsils will subside without any other treatment. I have seen cases subside at the

end of forty-eight hours, and within a week the patient would forget that he had enlarged tonsils.

Hypertrophy and hyperplasia are two different things. If you have the latter you must remove it. If you have a foreign body, a fibroma, so to speak, it must be removed. The tonsil is a glandular organ. It is of the same variety as the lining of the nasal chambers and vault. In hyperplastic tonsils you may have dangerous hemorrhage. Not only are the mucous sacs infiltrated, but around them organization of plastic lymph has taken place. The arterioles can not retract and contract. If there is a spurting artery, you must either tie it or use torsion. In removing an hypertrophied tonsil, if I have profuse hemorrhage I use a hemostatic, opening the mouth wide, and the patient would not know he was having a hemorrhage any more than having it from a tooth.

DR. SAMUEL E. WOODY, Louisville: I take issue with the essayist, and coincide with the last speaker. I believe tonsillar hypertrophy is secondary and always due to a strumous diathesis, which you know essentially consists in an increased vulnerability of the life of the tissues. Tissues that in ordinary individuals would resist irritation, in the strumous individual take on inflammation, and that inflammation has the character of chronicity and tendency to increase cell production. It is perfectly natural that the tonsils, which are lymphatic glands as well as racemose glands, which drain the territorial area most subjected to external irritants, that the structure should be chronically inflamed and should undergo rapid and cellular hypertrophy. It has been my observation that all cases of enlarged tonsils are strumous, either acquired or inherited, and the very first thing to do in curing a case of enlarged tonsils is to remove the cause, clear away the fountain head, and you will oftentimes cure the case. I treat enlarged tonsils just as I do the strumous diathesis. I give cod-liver oil, iodide of iron, and recommend a pure, unirritating atmosphere, free from dust or germs. In other words, I do all I can to abolish the causes of buccal and nasal irritation, then treat the membrane. The removal of the tonsils is one of the easiest of surgical procedures, and one of the most innocent I know of. I know of no lymphatic glands so easily and painlessly removed as the tonsils. They are easy of access, are only covered with one thin mucous

membrane projecting conveniently into the pharyngeal cavity. They are easily anesthetized by cocaine, after which we can operate the instrument for their removal.

I had a little girl the other day in my office who had tonsillar hypertrophy. The child was very nervous. The mother was also nervous, and had to leave the room while the operation was being done. I swabbed out the throat, put my instrument on one side, and snipped off about one third of the tonsil. The child scarcely felt it. I then removed the other one, and the child has breathed easily ever since.

DR. J. MORRISON RAY, Louisville: I simply want to speak of one point in the paper, and that is with reference to the surgical treatment of hypertrophy of the tonsil. I think when we come to treat the tonsils it depends altogether on the kind of tonsil that we encounter, and our method of treatment must be governed accordingly. We frequently see a variety of tonsillar hypertrophy that disappears in the course of a short time without any surgical treatment at all, simply by the internal administration of the syrup of iodide of iron and cod-liver oil. I think the class referred to by the author is that in which the glandular structure contains a lot of fibrous tissue, where you pass your finger in contact with the tonsils, and instead of feeling a soft, mushy mass, the tonsil is hard and moves in front of the finger. This variety of tonsillar hypertrophy requires for its relief surgical interference. I do not believe these can be gotten rid of by the internal administration of remedies.

As to what surgical procedure we shall employ, I think it depends to a great extent on the age of the patient. In children I remove the tonsils with the guillotine without fear of complication. When I encounter these in adults, I go at it with a great deal of timidity with the knife. Unless the child is the subject of a hemorrhagic diathesis, I think there is no danger in removal. When we want an immediate result it has been my custom to employ the galvano-cautery snare, or the galvano-cautery guillotine of Wright, which is an excellent instrument for the purpose. In this way the tonsil is removed with as little pain as by the knife or ordinary guillotine, and the hemorrhage following it amounts to very little or nothing. There is some danger of secondary hemorrhage after removal by the cautery, but these cases are exceedingly rare.

REPORT ON THE NASO-PHARYNX.

By George E. Davis, M. D.
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In reviewing the recent advances in diagnosis and therapeutics on this subject up to date, the limit of this paper permits the recount only of whatever has been of substantial value and material progress.

Addressing general practitioners for the most part, I shall be pleased to note facts principally of general interest, and to impress upon you the importance of a thorough knowledge of all the laws which govern physiology, pathology, and therapeutics, and a wise interpretation of their relations to the special diseases which you are often called upon to treat. Renewed investigation, then, of these principles, and the laws upon which they are enunciated—in view of what has been done, and what yet lies beyond—is worthy your consideration.

"In Malignant Disease of the Nose" Douglas (Medical Record, Vol. 43, p. 582,) calls attention to some points in the differential diagnosis. The diagnosis of carcinoma and sarcoma in this region must be based principally on the clinical history and gross appearances, but a microscopical examination helps to confirm the diagnosis. Even then the malignancy of growths in this situation can not be absolutely established, since the subsequent history and spontaneous recovery of some cases have proven them benign. Time, general treatment, or severe non-interference have sometimes worked good results, as illustrated by the report of cases by Knapp. Hence the necessity for discretion in prognosis, and avoidance of too early surgical procedures.

It is a question as to whether malignant growths in the nose are primary or secondary. The consensus of opinion is in favor of the latter view. This point, however, is hardly of vital importance, since the treatment in either case, when malignancy is once established, is radical removal.

Passing to that most common affection, chronic nasal catarrh, we will review its pathology and treatment, with special mention of the much-used and more-abused douche and spray. Wright (Medical Record, Vol. 43, p. 39,) has ably defended the nasal douche and spray, but discreetly observes that their indiscriminate use in the hands of the inexperienced subject them to censure from the otologist, who denounces them as potent factors for evil in producing middle-ear suppuration. But while the rhinologist admits the possibility of this complication, yet he will be loth to give up measures yielding so much good when used with discretion and skill.

The pathological conditions of the mucous membrane furnish the rational indications for the douche and spray. The glandular elements suffer first. As a result of chronic inflammation the conduits of the glands become plugged with epithelial detritus and dust, and are compressed by the increased amount of connective tissue elements, extravasated cells, and augmented vascular supply. The removal of this pressure, and of these inspissated plugs from the ducts of the gland is a *sine qua non* for the restoration of the normal functions of the glands.

Wright cites that "it is a universal law in therapeutics that where a sinus can not be destroyed with the knife it must be kept open to allow exit to deep discharges. This is done by drains, or by constant syringing and douching." He announces that "we have the same condition of affairs on a microscopical scale in the glands of the mucous membrane of the nose," and concludes that "it is manifestly impossible to do more in this direction than to disembarrass the mouths of these little sinuses," and "this then forms a rational indication for the nasal douche or spray."

When the watery douches and sprays are contra-indicated the oily sprays may be substituted.

When surgical procedures are employed, no special after-treatment is required. The nasal mucous surfaces display a marked toleration of suppurative processes, and remarkable freedom from infection in said processes.

Before passing I can but enter protest against the "soundness of the data" upon which Wright bases the "rational indication for the nasal douche or spray," and his explanation of the physiological effects of the latter. Granting that "the glandular structures are the first to suffer, and that, if a section is made vertically to the surface of the mucous membrane and longitudinally through the duct of the gland, we invariably find the duct itself choked with detritus;" still we maintain that it is impossible to disembarrass these ducts of this detritus by the direct mechanical or solvent action obtained by the employment of the douche or spray, and that the law in surgical therapeutics adduced by the author to prove his assumption is not pertinent, for there the "drains, syringing, and douching" are directed *within* the sinus and not *over* its mouth or outlet. Moreover, the pathological conditions of other elements of the nasal mucous membrane, besides the muciparous glands, obtain as data for a rational indication of the douche or spray.

A brief review of the pathology of this condition will make plain the physiological effects of the douche and spray. In chronic nasal catarrh we encounter not only a trophic neurosis of this gland, etc., but also a vaso-motor neurosis.

Definition (Starr, Pepper's System, Vol. 2, p. 124). "It is not possible to distinguish accurately in all cases between the vaso-motor and the trophic neuroses, for while in many features they are distinct, in a large proportion of cases they occur together. But it is not possible to ascribe all trophic changes to vascular disturbance, nor all vaso-motor changes to a defect or excess of trophic action. . . . It is always to be

remembered, however, that each may give rise to the other, and that in their pathology they are closely connected."

Physiology; Local Vascular Tone. The general blood-pressure of the body is governed by the amount of blood in the system and the rate and force of the heart action. The local vascular tone of any part or organ is governed by the degree of tension of its own vessels. The condition of contraction or dilatation of these vessels is dependent upon a system of nerve ganglia located in the middle coat of the arterioles. These ganglia produce constant contraction of the circular muscular fibers of the arterioles which oppose the intra-vascular pressure and thereby maintain the equilibrium of the circulation.

Causes of Variation of Local Vascular Tone. (1) Indirectly, any cause altering the heart's action may cause, secondarily, a disturbance of the local vascular tone. (2) Directly, local irritation of the ganglia in the vessel walls may produce a variation in their tone by exciting the ganglia to increased action, causing contraction of the vessels and consequent pallor, or it may inhibit the action of the ganglia, causing dilatation of the vessels and consequent flushing. (3) Reflexly, an irritant at some remote part, the impulse reaching the local ganglia through the nerve fibers, may disturb the local vascular tone.

Let us apply these principles to the pathological conditions found in chronic nasal catarrh. Here the arterioles are in a state of passive dilatation or angio-paralysis, and pressing upon the mucous glands whose sinuses are filled with detritus.

Now the douche or spray acts directly on the local ganglia in the middle coats of the arterioles, stimulates them to inereased action, causing contraction of these vessels, and thereby restoring local vascular tone.

Restoration of the local vascular tone assists resorption of the extravasated cell accumulation and pathological exudates, and by furnishing increased blood supply to the mucous

glands restores their function of mucous secretion with which to flush and wash out the plugs of detritus from their ducts.

It is evident that the power which relieves the choked sinuses is secondary, and not a direct mechanical or solvent effect of the douche or spray produced by the fluid flowing over their mouths or outlets.

"Internal massage in diseases of the nose and throat" has been enthusiastically advocated by Freudenthal, and he claims that this treatment is destined to do away to a large extent with the galvano-cautery and entirely substitute the spray."

It consists in percussing the mucous membrane by rapidly vibrating a cotton-covered probe soaked in a ten-per-cent solution of cocaine. The vibrations are produced by movement of the operator's arm, or by means of an electric motor devised especially for the purpose, the complexity of which machine I will not attempt to describe.

He bases the application of this treatment on its physiological effects, and asks us to consider the same. "The principal office it fulfills is to regulate the local circulation of the blood."

However, massage can never "entirely substitute the spray," for, as I have just shown, the physiological effects of the spray tend to regulate local vascular tone or the "local circulation of the blood," therefore direct massage of the mucous membrane and the application of the spray rest upon the same basis, and the treatment differs not in kind nor principle but only in degree. Both seek to restore the normal physiological functions of the parts by restoring local vascular tone, and through this correct the accompanying pathological trophic conditions.

This report would be incomplete without reference to "nasal reflexes," *Pari passu* with the advance of our knowledge of the histology of the sympathetic system, and the

physiological laws controlling same, are we able to more distinctly understand and appreciate the bonds of sympathy frequently existing between the affections of distant organs. And as each day's progress reveals some new bond, so each day increases the tendency, now prevalent, of general practitioners to specialize, and of specialists to generalize. Now every organ has its specialist to champion its rights as a fertile source of varied reflex neuroses, ranging in severity from the least enervation to the most serious nervous phenomena, as chorea and epilepsy.

That peripheral irritation of the cerebro-spinal nerves, by pressure, inflammatory action, or otherwise, may produce a distinct or referred action on accessory and even remote organs admits of no doubt. However, "it is through the sympathetic system, by the vaso-motor disturbance, that the most important manifestations of sympathy, pathologically speaking, can be traced." Bosworth directs notice to the fact that it is through vaso-motor disturbance that intra-nasal disease predisposes or produces such neuroses as asthma and hay-fever. These cases usually present some disturbance in the equilibrium of the circulation.

It is an open question as to "whether the cure of the local condition within the nose or the counter-irritant action of the application controls the reflex." Be that as it may, the clinician has learned to appreciate that any drug or measure that controls the circulation, reflexly or otherwise, has a felicitous effect in these cases.

MEMBRANOUS CROUP: WITH A REPORT OF CASES.

By W. Carroll Chapman, M. D.
Louisville, Ky.

Possibly no medical question has created so much discussion of late years as the separate identity of diphtheria and membranous croup. We have authorities of eminence who hold that the two diseases are etiologically and anatomically identical, notwithstanding they may differ greatly in their clinical aspects. Opposed to this view are those who teach that the two diseases are very distinct throughout.

The most recent researches have led to the acceptation of the former theory by the majority of investigators and students. In France the term *croup* is defined as "tracheal and laryngeal diphtheria;" in Germany, "membranous deposit on the internal surface of organs;" in England some consider it as a non-specific inflammatory membranous deposit on the mucous membranes of the larynx and trachea; others consider it a misnomer applied to a local manifestation of diphtheria. Fränkel believes that idiopathic croup is etiologically identical with diphtheria of the larynx caused by the Klebs-Löffler bacillus.*

Perhaps Osler is the nearest correct of the writers on this subject when he says: "Membranous croup is now regarded by many authorities as always diphtheritic, and while it must be acknowledged that this is so in the great majority of instances, there are cases, few in number it is true, in which it is not possible to assign this origin." Surely this view is

*Annual of Universal Medical Sciences.

sufficiently conservative to prevail almost universally, and we are willing to accept it as the best yet advanced until positively disproven. He further states that "the question may be settled by the presence or absence of Löffler's bacillus, which is a definite criterion of diphtheritic pseudo-membrane."

The cause and morbid anatomy of diphtheria and membranous croup being the same, how are we to harmonize that with the difference in the clinical features?

There seems to be two reasons why the constitutional symptoms of diphtheria of the pharynx and nose are absent in laryngeal and tracheal diphtheria or membranous croup, either one of which in itself is not sufficient, though the two acting together make the theory quite plausible. Essential to both of these is the fact, mentioned by me in an article on "Diphtheria: Primarily a Local, Secondarily a Constitutional Disease," which was published in the Medical News of January 20, 1894, that the pharyngeal and nasal mucous membranes are the receptacles *par excellence* for the development and active life of the Klebs-Löffler bacillus. Not only do these particular localities supply the best food for the full growth of the bacillus, which seems necessary to its performing its function, namely, the production of toxic albumen, but they furnish a ready medium for the absorption of this poison or these poisons in the system, from which come the constitutional symptoms.

The opposite of this being true of the larynx and trachea explains the absence of those constitutional symptoms produced only by the absorption of the toxic albumen. To make the point more plain, we will state the reasons in full: The larynx and trachea not being a suitable nidus for the development of the Klebs-Löffler bacillus, it would naturally follow that the germ here is only in a *modified form*. In support of this assertion is the fact that the bacillus when primarily located in the larynx does not attack also the pharynx. If it is in its

natural active, energetic state, why should not it travel to a membrane in such close relation to the one in which it is situated, especially to one better adapted in every way to its wants? The laws of bacteriology teach that it would do so, except that it is in a modified form.

The second reason that the constitutional symptoms are not manifested in membranous croup—laryngeal or tracheal diphtheria—is because of the resistance to absorption of the toxic albumen offered by these tissues. The virulence of the poison being modified and the power of absorption being lessened, both conditions existing at the same time, the effect of the bacillus is only local.

Considering membranous croup and diphtheria in the above manner, the etiological and anatomical identity are made to harmonize with the different clinical aspects. The cause being the same in the two diseases—for the clinical features being distinct they are practically different diseases—we are naturally led to an identity in the treatment employed, in as far as the removal of the cause is concerned. This latter fact led us to a closer study of the diseases, also to the treatment employed and to the determination to report that along with the following four cases of membranous croup.

Case No. 1 is a typical case of croup, and in reporting that we will be more explicit in the symptoms, letting them describe the other three cases, which, for the sake of brevity, we will report only where the history or symptoms are different from the first case.

The success of the treatment of the nine cases of diphtheria reported in the Medical News of January 20, 1894, induced me to try the antiseptic and supportive treatment also in membranous croup, laryngeal and tracheal diphtheria.

CASE 1. C. M., four and one half years of age. Called early in the morning of January 31, 1894. Marked dyspnea, also lividity of the lips and finger tips; hoarse, rough cough and respiration; facial expression one of deep anxiety;

intense restlessness; temperature 100.5°; pulse 124 and thready; respiration very rapid. Inspection of the pharynx showed only slight congestion. By inquiry it was learned that two days previous the child had shown symptoms of not feeling well. Toward the evening of that day a slight hoarseness developed, which increased during the night into what the mother called croup. Home remedies were used, and the symptoms continued through the next day and were intensified the following night. They were not so much alarmed until early the following morning on account of the slight fever. The condition of the child then became alarming (January 31st), and was noted by me as related above. The diagnosis was made of membranous croup. For immediate relief hot moist cloths were applied to the throat and one half teaspoonful of coal oil given and repeated in fifteen minutes and again in thirty minutes. This gave such relief that an emetic was not used at the time. Ease afforded, one fourth grain doses of calomel were prescribed every half hour until six powders given.

A spray of solution of hydrogen dioxide, one in six, was ordered to be used every two hours. Syrup of ipecac was prescribed, to be used only in case the paroxysm returned, fifteen drops every fifteen minutes until emesis procured or paroxysm relieved.

Four o'clock of the afternoon of the same day the symptoms were somewhat modified. Temperature 100°; pulse 120. There had been one slight exacerbation in the interval. The ipecac was given, but not to emesis. February 1st, 9 A. M., symptoms modified; hoarse, rough breathing still present, but respiration slower. Two paroxysms during night, one about nine o'clock; coal oil and hot moist cloths, ipecac to emesis; bowels moved. Slight exacerbation toward morning, relieved by hot moist cloths. Temperature 100°; pulse 110; lividity almost disappeared. Prescribed chlorate of potash and chloride of iron every two hours. February 1st, 4

P. M., symptoms about same as morning; continued same treatment except calomel and ipecac.

February 2d, 9 A. M., one slight exacerbation during night. Temperature 99.5°; pulse 100; respiration improved. Patient began to expectorate dull, grayish-yellow membrane identical with that of ordinary diphtheria. It might be well to state that at no time was there any appearance of diphtheritic membrane in the fauces.

February 3d, symptoms still improving; membrane still being expectorated.

February 4th, pulse, temperature, and respiration about normal. Asthenic condition; stimulants. Expectoration decreasing. Hydrogen dioxide four to six hours. Convalescence uneventful.

CASE 2. F. K., aged four years. Called during the night of December 3, 1893. Dyspnea, hoarse, rough cough; respiration very rapid; expression of anxiety; temperature 100°; pulse 120. Pharynx congested. Child had been hoarse and indisposed for two or three days with symptoms intensified at night; patient up and about through day, but steadily growing worse. A little brother of his died of membranous croup the 21st of January preceding, after tracheotomy had been performed. With the history and symptoms as above I felt secure in making a diagnosis of membranous croup. For immediate relief gave the same treatment as in Case No. 1. Then prescibed calomel and a spray of solution of hydrogen dioxide, one to six. The following day Case No. 3, the little sister of No. 2, was affected similarly, which developed one day later into a case of membranous croup as well marked as the brother's. Same treatment. In both these cases the disease developed, ran its course and yielded to treatment in the same manner as Case No. 1, except in both cases about the third and fourth days a slight membranous deposit appeared in the fauces. Grayish membrane loosened from the larynx usually on using spray. Convalescence began on the sixth day.

CASE No. 4. J. H., aged thirty-seven years. Called hurriedly early on the morning of February 21, 1894. Was surprised to find a woman of this age suffering in this way. She had complained of a slight affection of the throat for a day or two preceding. A few hours preceding the call for me the dyspnea had been increasing, and I found her cyanotic and struggling for breath. There was neither time nor opportunity to send for a specialist for the purpose of intubation. Hot moist applications with coal oil in teaspoonful doses every fifteen or twenty minutes gave comparative relief in about forty minutes. While I would scarcely expect membranous croup at this age, with no exposure to diphtheria, the history and symptoms, after the paroxysm subsided, pointed that way, and I decided to treat it as such. So prescribed precisely same treatment as in Case No. 1; with doses to suit the age. The temperature after the paroxysm was 101°; pulse 124, respiration characteristic of croup. On the third day the membrane, grayish-yellow appearance, began coming away. The symptoms gradually subsided with exacerbations recurring at night, and convalescence dated from the sixth day after I was called.

A few words in regard to these cases would not be inappropriate. I did not have the membranes examined for the Klebs-Löffler bacillus because at the time I did not anticipate reporting them. However, the cases are so typical of membranous croup that there is barely a possibility of mistaken diagnosis, at least in every case reported.

I made especial notes of the cases because I wanted to compare the result of the treatment, with hydrogen dioxide obtained, with the result given in the nine cases of diphtheria previously reported. The success in the first case led me to follow it in the other three.

If I am correct in the conclusions reached from the use of H_2O_2 in diphtheria, and am correct in my diagnosis in the above four cases of membranous croup, of which I feel

satisfied from my experience with the disease heretofore that there is not the shadow of a doubt, then we are brought by a new route to some natural conclusions, which have been previously stated, regarding membranous croup.

1. The effect of a proper solution of H_2O_2 upon the membrane of *croup* and that of *diphtheria* when properly applied is identical, which strengthens the claim of bacteriologists, that the etiology and morbid anatomy are the same.

2. One reason that the clinical aspects differ is that the Klebs-Löffler bacillus is in a modified form in membranous croup, or laryngeal and tracheal diphtheria, due most likely to the fact that the tissues here are not adapted to the complete development of the bacillus, and its consequent inability to produce the toxic albumen in virulent form.

3. The second reason is the resistance offered by the tissues of this locality to the absorption of the poison (Daly).

4. In the treatment, hydrogen dioxide is indicated by spray, first, on account of its bactericidal properties, and secondly, to counteract by inhalation the poisoning by carbon dioxide, which usually is the cause of death in these cases.

5. Calomel, chlorate of potash and chloride of iron are indicated for about the same reasons given in 4.

It seems reasonable that further observation along this line will result in a decrease in the mortality due to the above disease.

DISCUSSION.

DR. JOHN A. LARRABEE, Louisville: All I wish to do is to call attention to the tendency now existing to unite the two diseases, throwing out entirely all bacteriological and microscopical investigation. I believe in both microscopy and bacteriology thoroughly, and I further believe that a good microscopist or bacteriologist can find almost any thing he looks for. The great point is this: They ignore entirely symptomatology. That is the great tendency. There is as much similarity between diphtheria and croup as there is between measles and smallpox. In the one

case we have a disease that can be gotten up by any thing that acts as an irritant, a disease in which we have an exudate. This was the old doctrine, and it has not been disproved; a disease in which we have no contagion, a disease corresponding to climatic influences, occurring at certain seasons of the year, and a disease which occurs by preference in children. We have a disease in which there is no enlargement of the glands of the neck, and I never saw a case of diphtheritic poison or diphtheria in which the germs were not present.

The doctor failed to tell us of the condition of the secretions of the kidneys, a very important point for differential diagnosis. Eighty-five per cent of the cases of diphtheria, examined as regards urinalysis, show albumen in quantities sufficient to be recognized, in many of them a very large proportion. We do not have this in croup. I regard the condition of the urine as essential to the diagnosis of diphtheria as any single symptom, and its examination ought not to be omitted in a single case.

We have in croup a disease which the doctor denominated as having no sequelæ. There is no continued paralysis. When the mechanical obstruction is relieved the patient is well. Thus we have long recognized croup as a disease, sudden in its onset, producing death by mechanical obstruction, without symptoms of blood poisoning, and never followed by paralysis or the ulterior symptoms so commonly known to us in diphtheria. These are points of permanent distinction.

In regard to the possible explanation of the essayist, which was certainly very ingenious indeed, that the structures involved in the location of the membrane were not such as to absorb the tox-albumin formed by the micro-organisms, that certainly would account for the non-poison; but the doctor states that his case was attended by high fever, so it becomes necessary for him to explain the febrile symptoms. Invasion of the system with diphtheria is attended by elevation of the temperature. We are called upon to see our patients with high fever, cephalalgia and myalgia being more prominent, the temperature ranging between 104° and 105°. There are instances where the disease is not local before it is constitutional. I object to compounding the terms. I believe in diphtheria and croup, but I do not believe in a diphtheritic croup or diphtheritic any thing else. It is diphtheria or it is not. I have seen cases where there was diphtheria and croup

in the same case, the croup being produced by mechanical irritation. I have seen cases of typical croup go on to death, where the patient had inhaled vapor or poisonous fluids. I have seen the same pathological membrane in cases where steam has been inhaled, where we have death produced by mechanical obstruction. Certainly there was no microbic action here, and the climatic influences, the cold and exposure in the winter, are sufficient to develop in an immature larynx a disease attended by exudation. This is what I call croup.

Another point I desire to call attention to is the character of the membrane itself and the expectoration of membrane. Anybody who knows any thing about diphtheria knows with what difficulty the membrane can be taken away from the sound tissue; and anybody who knows any thing about croup knows with what facility this membrane can be removed after the secretion has formed beneath, while in diphtheria an effort to dislodge the membrane takes with it a portion of the underlying structure. I desire to put myself on record as opposed to union in these two diseases.

DR. T. C. EVANS, Louisville: I was very much interested in the paper of Dr. Chapman, in that he reported four cases of croup without a single death, neither intubation nor tracheotomy having been performed. I think it is rather unusual, from the fact that the best statistics we have at our command show that ninety-five per cent of the cases of true croup are fatal.

In regard to the treatment and the exfoliation of the membrane, the membrane being expectorated and thrown off in each case from the third to the fourth day, all of us who have had experience with cases of laryngeal croup know that it is rare that the membrane is cast off on the fifth day, and it sometimes remains until the sixteenth day. When a piece of the membrane is attached to the tracheotomy tube it looks translucent, and does not have a dirty color when thrown off.

With reference to shortening the life of the membrane with peroxide of hydrogen, I do not think this can be done. I have repeatedly, in the membranous patches of diphtheria on the tonsil, where the continuous use of peroxide of hydrogen (15 volume solution) was resorted to, been mortified to see the patch grow day after day. I think peroxide of hydrogen never attacks the membrane until it has begun to decay, until it has run its

natural course. When pus forms upon the pseudo-membrane, which hastens the process of exfoliation, then we can hasten the casting off of the membrane by using peroxide of hydrogen. It must not be forgotten that we sometimes do harm with the use of peroxide of hydrogen. I have set up cases of pneumonia from the use of peroxide of hydrogen where I had a tube in the larynx, the tube being partially occluded. I thought I might be able to dissolve the membrane without removing the tube, and within a short time the temperature rose and I had a well-developed case of pneumonia. That, I am inclined to think, was due to the use of peroxide of hydrogen in the larynx of the patient, it coming in contact with the small bronchi and lung tissue. I do not know any thing about coal oil, and I do not know what effect it would have on the membrane. I am satisfied, however, that peroxide of hydrogen will not shorten the life of the true membrane we have in the larynx. I think the most of us are inclined not to tamper with these cases, except to perform tracheotomy or intubation. I do not know of any department of medicine which has shown greater advance than intubation within the last ten years. I do not think there is any class of cases in the practice of medicine that more excites the sympathy of the practitioner than cases of true croup. We all remember them. We are called upon time after time to treat cases of croup, where it seems to us there is absolutely nothing to do but to wait for death. Destruction of the pictures and furniture has been resorted to and still the patient went on gasping for breath. It is true we do not save all these cases, but the chances for recovery are good where only the larynx is involved. As the essayist has said, constitutional infection from laryngeal diphtheria is not usually very violent.

DR. JOSEPH HOPSON, St. Matthews: I can practice, but I can not preach. I rise, therefore, to endorse the able paper of Dr. Chapman. My experience with the disease has been a sad one indeed. I have had several cases, ranging in age from seventeen months to five years, and all died promptly. So I have come to the conclusion that medicine does not possess any curative properties whatever in this disease. The only relief that we can hold out to our patients is tracheotomy or intubation.

DR. R. B. GILBERT, Louisville: The nomenclature of diphtheria and croup is confusing. The doctor describes a case of

croup and confounds it with diphtheria. That is the conclusion I have arrived at in listening to his paper, and that he makes no distinction between the two diseases—it is one and the same disease. I agree with some of the gentlemen who have spoken that the two diseases are entirely different, and we should drop the word croup entirely. It has no significance whatever; but there is certainly a very distinct inflammation of the mucous membrane of the larynx accompanied by exudation of epithelial necrotic cells and an albuminate process, and it has an entirely distinct membrane, separate from what we call true diphtheria, and we should drop the term croup entirely and speak of membranous laryngitis and fibroid laryngitis. By so doing we will get rid of this confusion that so frequently arises.

The cases that the doctor has reported are remarkable, in that they all recovered so promptly under treatment; and they are further remarkable because they presented no complications. Of all the diseases known, perhaps there are none accompanied by more dangerous sequelæ than diphtheria. As mentioned by Dr. Larrabee, other organs of the body suffer in diphtheritic disease, and we are especially liable to have paralysis of some character following as a complication. I am rather inclined to believe that the cases reported were membranous laryngitis and not diphtheritic laryngitis. A great deal of confusion has arisen on this subject, and so great an authority as J. Lewis Smith, in the latest edition of his book, maintains that there is a difference between the two affections, and the report of such cases still further proves that there is a disease in which coal oil and ipecac have therapeutic efficiency. Ipecac acts nicely. If you give it in repeated doses, however, to a patient suffering with genuine diphtheria, either of the larynx or pharynx, its depressing effect will be sufficient to cause his death. Some years ago I treated diphtheria in that way. Whenever I gave that sort of emetic death was a certain issue. I have seen certain cases of diphtheria get well where the only emetic used was a turpeth mineral. Ipecac depresses the patient and leaves him prostrated for hours. As to the local treatment of diphtheria, I do not think the peroxide of hydrogen cures the disease at all. In the constitutional treatment Bourbon whisky and chloride of iron are the remedies, and in the local treatment intubation or tracheotomy with possibly some stimulating emetic.

DR. SAMUEL E. WOODY, Louisville: There is no doubt but that we may have a fibrinous inflammation or a non-specific inflammation of the larynx. But the disease under consideration seems to be clearly specific. I will confess that I was the one who was called in consultation with the doctor's predecessor to perform tracheotomy, after which the patient died. I remember very well I saw the case about midnight. The child was very sick. There was profound toxemia, high fever, and all the evidences of a severe case of laryngeal diphtheria. We did the best we could to lessen the membrane, but without success. We speedily performed tracheotomy, but the patient died. That was only a few weeks before you were called in, doctor.

DR. CHAPMAN: Several months.

DR. LOUIS FRANK, Louisville: I am glad to hear Dr. Chapman express his opinion in this way. From a bacteriological standpoint there is absolutely no difference between membranous croup and diphtheria. The pathological changes are precisely the same. The diphtheritic membrane is confounded with co-called croup. A great many of the systemic effects we have in diphtheria are due to secondary infection with the pus-producing micro-organisms, and not to the primary effects of the diphtheritic bacillus itself. There may be a varying virulence in the diphtheritic bacillus, as well as in other organisms or plants. They must be sown in a suitable soil.

Examinations of the membrane bacteriologically have shown the presence of the Löffler bacillus in the so-called cases of membranous croup. Dr. Delafield, of New York, held the position several years ago that Dr. Larrabee now holds, but he has since receded from that position. We can and do have paralysis following the infection of animals with the organism derived from the membrane, as demonstrated by pure culture experiments that are analogous in every way. I heartily indorse what the doctor has said in this line.

DR. T. B. GREENLEY, Orell: I have practiced medicine for about forty years, and have seen one case of membranous croup get well, but I was apprehensive that the case would terminate fatally.

Fifty years ago Dr. Green, of New York, made himself celebrated by publishing an account of the manner in which he treated membranous croup. His method was this: He would make a strong solution of nitrate of silver, take a whalebone pro-

bang, tie a piece of sponge on the end of it, dip it into the solution, and then introduce it into the larynx. I went to a case one evening and was told by the parents that the child was dying. They said, "Doctor, can't you do any thing?" I told them about the character of the treatment instituted by Dr. Green, and I had the courage to attempt it. I carried it out, and thought sure I would kill the baby, but the little one recovered. This was the only case I saw get well. About twelve or fourteen years ago I was called to a case, and thought I would institute different treatment from what I had ever done before. I told the mother the baby would only live two hours, and she said, "Can't you do any thing, doctor?" I said I would try to do something. I placed the child in the mother's lap and administered proto-chloride of mercury and two grains of chloride of ammonium, gave it every two hours, with warm cloths wrapped around the neck, and instructed the mother that if the child lived to send me word the next day. The next morning I saw the little boy coming, as I thought, to tell me child was dead, but he came for more medicine, and said the baby was a good deal better, and that his mother wanted me to come and see it. I went and found the baby doing well. The child recovered. Since that I have treated six cases on the same plan, and they got well.

DR. GEORGE W. BEELER, Clinton: Dr. Frank took the position that diphtheria and membranous croup are the same disease. I have been practicing medicine thirty-nine years, and I am satisfied from my experience that they are not the same disease. I do not care what you say about the bacillus. Even if you find it in the two diseases, I am still satisfied that they are different affections. I might go on and tell you about the number of cases of membranous croup that I have had, the number of operations of tracheotomy that I have performed, the number that have gotten well by the use of tartar emetic and turpeth mineral heroically given, but it is hardly necessary. Quite a number of cases have lingered along from twelve to fourteen days perhaps, and then got well. As soon as the membrane is discharged in membranous croup the child can breathe; it can take in sufficient air to breathe, and is ready to go about. But in diphtheria, after the membrane is exfoliated and given off, the child will often be paralyzed. There will be that constitutional depression following the diphtheria which does not follow membranous croup. I know that doctors are apt to be mistaken in their diagnosis of

the two affections, but I am satisfied that diphtheria is a constitutional disease, while membranous croup is a local trouble. At least that is the best definition that we can give of it with our present information on the subject.

DR. YAGER: I have nothing to say on this subject except this, that the more we understand the cause, progress, nature, and treatment of this disease the better we will be next year when we meet again.

DR. CHAPMAN (closing the discussion): In reporting those cases I took the position which I did, anticipating just such opposition as that which I have met. At the same time I am just as fully satisfied that these cases were membranous croup, and they were identical with diphtheria.

In the discussion some of the gentlemen have misquoted me, others have misunderstood me, and in that way I am led to reply to some of their remarks. In the first place, my friend, Dr. Larrabee, said that membranous croup was just as different from diphtheria as measles is different from smallpox. To a certain extent that may be true, and I mentioned in my paper that the clinical aspects of the two diseases are entirely different, but that the cause and morbid anatomy of the diseases are exactly the same, and in this opinion I am upheld by the best authorities both in this and European countries. I believe in my paper I have explained, at least to my own satisfaction and to some of the gentlemen who have spoken, the reason why in membranous croup constitutional symptoms are not manifested as they are in diphtheria, and I will not go over that ground again at this time.

Dr. Larrabee misquoted me in saying that I reported a case as one of high fever, and I think that came quite naturally, because I read the temperature 101.5°, and he understood it to be 105°. None of the cases had a temperature above 102°. I am satisfied that Osler, Pepper, and some European writers say that membranous croup may appear by a deposit in the larynx as small as the end of a pencil; in other words, membranous croup may be modified to such an extent that it is hardly noticeable. The same applies to diphtheria, and if the four cases which I have reported were membranous croup, or laryngeal and tracheal diphtheria, which the most eminent authorities bear me out in believing, then it can be explained that they were in modified form. I do not claim any special skill in bringing these cases through, and the only object of my paper was to uphold the treatment I used, and not to lay special stress on the identity of the two diseases.

THE ADVANTAGES OF THE WESTERN PLATEAU IN THE TREATMENT OF PHTHISIS PULMONALIS.

By S. D. Swope, M. D.
Marion, Ky.

The treatment of phthisis pulmonalis has been a theme to occupy the medical mind since the first sufferer progressively emaciated and coughed his pulmonary tissues away, despite the arduous efforts of the prehistoric medicine man, whose charms and incantations proved little less satisfactory than the present therapeutic endeavors with the light of time shining with resplendent effulgence on their experience.

The treatment of this arch enemy of science has exhausted scientific research as well as empiric speculation, as is self-evident to every medical mind since the serum of dog's blood has been employed in France.*

In sheer desperation we turn from the field of allopathy and fill our mental abdomen with the succulent but unstable morsels in the pastures of *similia similibus*, until we find we have gorged ourselves with a substance absolutely indigestible, "Koch's Lymph."

There has been so much written and said in the last few years with regard to etiology and pathology in this affection that the careful reader of current medical literature would necessarily be bored by any rehashing of the subject. Suffice it to say that it is a commonly accepted conclusion that the bacillus tuberculosis now has the credit of producing the pathological results under discussion.

*Gaze. Med. De Paris, 6, 1881.

At this micro-organism the brains of the universe are leveling their weapons, but, despite the storm of therapeutic agencies and empirical endeavors, unscathed he stands and waves defiance at the attacking cohorts, so far secure in the fact that whatever may be able to deprive him of vital force will pull down the temple which he inhabits about his dead body, so he takes his dose of alcohol, cannabis indica, iodine, strychnine, and carbolic acid with a feeling of perfect security.

The observant reader and practical practitioner is forced by perfectly natural conclusions to turn from a long list of unscientific and irrational agencies until some new experiment exemplifies the adage that "hope springs eternal in the human breast," when with laudable ambition, but unfortunately with no scientific conclusions, once the *ignis fatuus* lures him away from the path of science and duty.

From following these will-o'-the-wisps of past experience we turn with wearied brain and exhausted resources to such men as Austin Flint, who for so many years led the medical minds of this hemisphere, and find the three great therapeutic agencies, which as yet have the greatest discovered influence over this dread enemy, advocated by this great adversary—altitude, dry air, and sunshine.

Recognizing the above to be true, thousands of sufferers are sent annually by physicians to Florida, the Catskills, Carolina, Colorado, New Mexico, and Southern California.

When Dr. William Pepper, in closing his lecture to the class at the University of Pennsylvania Hospital, February 25, 1893, said in reference to a consumptive clinic: "I am sure as finite being can be, if this girl could go to Colorado or any dry, bracing climate in the country, and take care of herself, that this would be stopped and she would become a perfectly healthy woman."

He struck the key-note for the treatment of phthisis pulmonalis with our present knowledge of the subject.

Since we have concluded that a dry climate, with a maximum number of fair days and a minimum humidity, with slight range of temperature, a moderate degree of high altitude, and ample facilities for out-door life are the elements best suited for the treatment of this disease, it behooves us to use all possible discretion in the selection of such salubrious surroundings for those with whom all our skill must sooner or later come to naught without these assistants.

Past experience has clearly demonstrated that for permanent or even long-continued residence Florida is unsuited for this class of patients; the low altitude, the humidity, and the heat of summer render this region almost untenable during the summer months.

North Carolina with her pineries does not fulfill the requirement, for her most popular resort, Asheville, only has an altitude of 2,250 feet, while her temperature ranges from 100 degrees to 6 degrees below zero, and we instinctively turn to the Western Plateau.

The professional mind has long since been led in this direction, though we have had more theoretical conclusions than personal experience in this region.

Early in the present century many a poor consumptive left his Eastern home in poor health to try his fortune in the gold fields of the West, and while he did not always fill his pockets with the precious metal he did his lungs with the pure ozonized atmosphere of a high, dry climate, and many a sickly, sallow cougher became a brawny miner.

'After careful research and some personal experience in looking over the regions, I come to the conclusion that Southern New Mexico comes nearer fulfilling all the requirements for the advantageous treatment of pulmonary diseases than any other region with which I am familiar.

Southeast of Silver City there is a high plateau, partly across which runs the little mountain stream, the Mimbres River, until it loses itself in the dry, sandy plains. This

plateau, from 4,500 to 5,000 feet in altitude, about fifty miles long and forty wide, is sheltered on every side by high mountain ranges and peaks. The wind blows almost continuously from the northwest and west. The greatest velocity recorded at Silver City is only 20 miles an hour, while Denver has a record of 42, New York 48, Chicago 35, St. Louis 37. The sun shines nearly all the time, there being only thirty cloudy days recorded by the Signal Service officer at Fort Bayard in 1891.

Some idea of the dryness of the atmosphere may be gathered from the fact that ten inches is considered a heavy annual rainfall, and no one in the region expects rain from October until the following July. Vegetation in this region does not decay but simply dries up.

So perfect is this desiccation that I dug from the site of an old Aztec village a piece of pine that had been used as a post. It still remained in a perfect state of preservation. Even the charcoal remained intact where the Indians had burned it off at the lower end many years ago. Animals do not decay, but simply dry up on the plains. Beef will keep here without salt for weeks when a man is not uncomfortable in his shirt sleeves.

In this valley the maximum temperature is 90 degrees,* but the ever-present breeze from the mountains so tempers the heat that it is not oppressive. The minimum temperature for the last ten years has been 28° F. The hottest days are sure to be followed by nights when a blanket is a necessity, enabling one to secure a good night's sleep though the heat of the day may have been oppressive.

Here an invalid may be out of doors three hundred and thirty days in the year, while the mountain scenery and many geological developments afford pleasant diversion.

Unfortunately the facilities of this region are meager indeed for the accommodation of invalids, and poor hotels

*United States Signal Report.

and poorer houses are the rule everywhere. I found here many persons whose physician had informed them that only a few months were left them on earth, when in reality, comparatively free from the effects of their malady, they were pursuing their vocations after several years had elapsed.

Pulmonary phthisis does not occur, so far as I could learn, among the natives, nor does the disease develop in offspring of tuberculous families.

Asthma and hay-fever are unknown. At the northern extremity of this plateau there wells up a hot spring that flows at a temperature of 142° F., affording ample facilities for bathing, and irrigating quite a scope of country. This spot seems to me the most favored I have ever yet seen for treatment of pulmonary disease. With a mean temperature of 54°, humidity the lowest possible, in a latitude of 32° 46′, longitude 108° 30′, in an altitude of 4,500 feet, highest temperature 90°, lowest 28°, with a high, dry air in which putrefaction literally does not take place, we invest our patient with surroundings which facilitate the healing process and invigorate his body to the highest possible degree.

When I reached this region late in the winter with a patient whose left lung was almost entirely hepatized, who had had night-sweats, progressive cough, profuse pulmonary hemorrhage, and great emaciation, his exhaustion was almost complete. Leaving him here I went to Southern California to investigate its climate, returning in twenty days. I found my patient, who was scarcely able to walk when I left, riding readily and walking everywhere. He now is working on a cattle ranch. His cough has disappeared; he has gained much strength and considerable weight. He can now ride forty miles a day, and like myself he is overjoyed with the change.

I am conscious that one swallow does not mean that summer has arrived, and yet with my experience and the happy

result with this patient, in which the diagnosis was unmistakable, I do feel warranted in asserting that most phthisical patients sent to this climate in time, placed in desirable surroundings, and given the regular palliative and supporting treatment, will come nearer recovering from phthisis than under any other now known treatment; and I firmly believe that at the foot of the hillock, from which issues the hot spring of which I spoke, will some day be built a sanitarium which will prove a Mecca if not a fountain of life to many a poor consumptive.

In passing through this region the average traveler in pursuit of either pleasure or health sees little to interest him. The sandy waste, the mesquite brush, and sleepy towns are of little interest, and do not compare favorably with the orange groves all ladened with their golden fruits, the nodding acacias, graceful eucalypti, and spice-perfumed pepper trees of lower California, where graceful hedges, stately palms, and beautiful flowers are seen on every hand; but ice-boxes are badly needed for their meats and game, and the disagreeable sea fog creeps to the foothill and up the slopes of the Coast Range, and at times the grapes must be transported to higher altitudes to dry into raisins, while mackintoshes and rubber shoes are often needed.

I have said nothing of many places on the Western Plateau which have unmistakable advantages in the treatment of pulmonary diseases, but have confined myself to the special regions which, after personal examination, I believe to be best adapted to the treatment of this affection.

Northern New Mexico and Colorado have long been lauded for their climate, but on the 22d of February last, while Santa Fe was shivering with sleet, Las Vegas and Colorado City with Denver enveloped in six inches of snow, the valley of the Mimbres was as dry as tinder, and after ten o'clock few men needed more than a light suit and no overcoat.

DISCUSSION.

DR. W. L. RODMAN, Louisville: Personal residence in the Western country, or near where the essayist speaks of, enables me to confirm every thing he says. I believe the location is a good one for consumptives.

DR. SWOPE (closing the discussion): I have nothing in particular to add, except to thank Dr. Rodman for his commendation of my paper. I would like to say that the patient whom I referred to is my brother, and I have left him there for permanent residence. I had a letter from him yesterday describing how he had learned to use the lasso, and he has recuperated to a remarkable extent.

CONSANGUINEOUS MARRIAGES A CAUSE OF TUBERCULOSIS.

JOHN G. BIRCHETT, M. D.
Cropper, Ky.

In speaking of tuberculosis in this connection I shall not differentiate it from scrofula, for scrofula is a tubercle lymphoma; but tubercle as a heteroplastic growth has also "the prejudice of malignancy," which does not belong to scrofula. Both, generally speaking, are diseases of extra-uterine life, and if they be hereditary, a fact that may not be disputed, they are not congenital. It is hereditary, not as a disease but as a disposition. This question of heredity may be solved by cellular pathology. The tissues are the causes of the disposition of the hereditary vulnerability, and the younger and more immature they are the easier will this vulnerability betray itself at a suitable opportunity. In this connection it is worthy to note a disposition to tuberculosis always signifies a disposition to inflammation. In a great many cases I have observed in consanguineous marriages, without any trace of struma or tuberculosis in the antecedent history of either parent, their offspring would show unmistakable symptoms of tuberculosis and often succumb to the ravages of that disease.

CASE I. D. B., a magistrate and farmer, married in 1852 his second cousin; had six children, four boys and two girls; his wife died of typhoid fever; oldest son died, aged twenty-three, of tubercular meningitis secondary to pulmonary tuberculosis; second son died, aged eighteen, of pulmonary tuberculosis; third son died, aged three years,

with tubercular meningitis; fourth son yet alive, but has scrofula; oldest daughter married, has two children, boy and girl; the girl is apparently healthy; the boy has Pott's disease; second daughter married, and died with pulmonary tuberculosis; left one child, a girl, hard of hearing, very dull, and has chorea.

D. B. married the second time; has four children by his second wife, all very healthy.

CASE 2. J. B., a farmer, married in 1858; had three children by his first wife, two girls and a boy; all healthy and married; all have children that are healthy. Married his second wife in 1864, his first cousin; had four children, all boys; one died at four years of age with tubercular meningitis; the other three yet living, one is feeble-minded, twenty-two years of age, the other has pulmonary tuberculosis, and the fourth son, eleven years of age, is apparently healthy.

CASE 3. G. Y., a farmer, married his first cousin in 1840; had nine children: two died with pulmonary tuberculosis, two were shot quite young in personal brawls, five are yet living, two girls, who have pulmonary tuberculosis, and three boys, one of whom is bodily deformed; one is addicted to the morphine habit, and one has feeble mental capacity. Married his second wife in 1870; has one child, a boy, in perfect health.

CASE 4. Mrs. M. H. married in 1859 her second cousin; had three children, two girls and a boy; boy died of tubercular meningitis when five years of age, one girl died of pulmonary tuberculosis when eighteen years of age. The other daughter is suffering at present with hemoptysis; married, had two children, one died of pulmonary tuberculosis at twelve years of age, the other living, apparently healthy at eight years old. Married her second husband in 1873, has four children, all of whom are healthy.

I once practiced medicine in an old, uncommunicative settlement in Kentucky where consanguineous marriages

were of common occurrence in many of its families, so much so that in some it was difficult to trace relationship.

The chronology of the four families recited above is but a very few out of the many well-defined cases.

To digress a little: When a physician prescribes for or remedies the immediate ailments of his patient, his duty as a physician is but half done, and I might add, in instances where others would necessarily suffer from the pre-existence of such diatheses, his duty is but one tenth done, or hardly done at all, the *conditio in facto* is how then to prevent.

In view of the rapid strides that have been made and the exhaustiveness of the writings in these halcyon days of preventive medicine, my remarks here may seem *post confirmo;* but this biological subject has been studied mostly in the concrete and not in the abstract, that is, how to prevent certain germs and bacteria from entering the different tissues of the different organs of the body, while predisposition and vulnerability have been nearly ignored. I would rather have nature's resistance of a healthy mind and body than the protection against diseases of all the bacteriologists combined, for seed sown on a barren soil can not flourish, neither can the germs and bacteria that cause diseases find lodgment and flourish in their ravages upon physiologically sound tissues.

The key, then, to the successful treatment of all pathological disintegration and degeneration of tissue "in the present state of our knowledge," is in building up the system, bringing about as near as possible a natural physiological condition.

While I have cited tuberculosis as a common affliction following in the wake of consanguineous marriages, it is because my observations have been mostly along that line, but, collectively speaking, there is no doubt that physical deformities, mental derangements, and imbecility is a common heritage of this shameful bond of Cupid, a menace to

society, a curse to family unity, and a stigma upon civilization. The Good Book, which is the foundation of our own organic, social, and religious laws, has not failed in the eighteenth chapter of Leviticus to command us against this matrimonial evil, a disobedience of which not only proves a curse to those who violate the command, but sows the seed of predisposition, vulnerability, and malignancy, which will develop a baneful existence to generations yet unborn. To perpetuate wealth and influence it has often been an unfortunate resort, of which the crowned heads of European countries have furnished us in many instances with some sad examples.

The prosperity of a nation depends in a great measure upon the healthfulness of its people. With proper laws to prevent consanguineous marriages of individuals, and, to go a step farther, not only consanguineous marriages but the marriage of hereditarily diseased persons with others of the same heredity, and the rigid enforcement of such laws, will bring peace and happiness to many households and strength to the nation.

DISCUSSION.

DR. SAMUEL E. WOODY, Louisville: I would like to enter a protest against the indiscriminate condemnation of consanguineous marriages. I believe it is unscientific. It is unjust. Because two people are first cousins there is not sufficient reason that their progeny should inherit disease. Children can not inherit from their parents what they never had. I believe there is no physiological objection to the union of two healthy first cousins. We certainly find no objection to breeding-in in the lower animals. However, the trouble is, two first cousins are apt to inherit the same constitutional taint, and of course their offspring would inherit it from either side. Again, the union of two first cousins might have a beneficial effect by the offspring's inheriting different and antagonistic constitutional diatheses, the one having a rheumatic diathesis and the other a strumous. Their progeny would be half one and half the other, and might be able through

life to resist both. It is a pity that we can not control the breeding of the human race as we can that of the Kentucky horse. If we could have two hundred years of as intelligent supervision of the procreation of our own species as we have had of the Kentucky thoroughbred, we would have in this country a race of men and maidens far more beautiful and physically perfect than any that ever graced the homes of classic Greece. We would regenerate the human race.

DR. BIRCHETT (closing the discussion): With reference to the cases I related, statistics will bear me out in my assertions regarding consanguineous marriages, that even where the parents have been perfectly healthy, showing no cachexia or disease of any kind, such marriages have resulted in diseased offspring.

ABUSES OF PROPRIETARY REMEDIES.

By H. H. Roberts, M. D.
Paris, Ky.

In bringing this subject before the Society it is not my intention to condemn any particular manufactory or class of these remedies in either their mode of preparation or the composition of such remedies, but to be pointed on the main facts that are of interest to the physician and drug consumer.

The too common practice among physicians of prescribing proprietary remedies can not be condemned in too strong terms.

That this habit is a fixed one with many physicians is a well-known fact.

This habit or practice may result from various causes, but usually from either indolence on the part of the physician or from the smooth "silver tongue" of some representative of these patented nostrums, whose business it is to lay before the physician the many virtues contained in his particular line, and frequently the physician yields to the words of the tempter, for it is so easy, and requires such a little effort to write a prescription for a proprietary preparation.

The result of this is that it begets the habit of writing prescriptions or dispensing medicine for fixed formulæ, both to the detriment of the physician and patient. The vast majority of these secret and proprietary remedies are accompanied by a copious amount of literature, and also testimonials from physicians and patients lauding the remedy to the heavens as the greatest discovery of the nineteenth century; has cured and will cure every thing from tuberculosis down.

We have but to glance over the advertising pages of our leading medical journals to see to what extent this business is carried. When the physician prescribes these secret nostrums the patient pays an exorbitant price for the privilege, for these remedies are much higher in price than similar preparations of official standing, and the physician has no assurance that he knows what the patient is taking or what the result will be.

Besides the patient may not only receive no benefit from the preparation, but in many cases it may be detrimental to the health of the patient, for one of the most severe cases of salivation I ever saw was from the administration of one of the well-known proprietary remedies.

In many cases I believe that, granting that the manufacturers incorporate all the ingredients in the given formula, they so change its composition in producing the beauty of color and making it pleasant for the palate that the drugs are either so modified or chemically changed that their physiological action is almost *nil.*

This may not only be injurious from the change in the drugs, but greater harm and possibly neglect may result from the remedies being used in cases where the formula seemed indicated. Every time a physician so far forgets himself as to prescribe a proprietary remedy he jeopardizes his own reputation and in some cases possibly the life of his patient.

Another great wrong and injustice which is steadily growing is the prescribing pharmacist. I believe the proprietary remedy manufactories are largely to blame for this.

The first thing they do is to make a thorough canvass of all the physicians in the county, leaving samples, literature, etc. Then the pharmacist is the next victim; he is stocked with a gross or less of the remedy to get rid of as best he can.

All the semi-secret remedies have large, plain directions accompanying the preparations, giving doses, and the diseases for which the remedy is said to be indicated, consequently

it is very easy to dispense them. The profession is brought into disrepute by the use of these remedies, and the manufacturers of such remedies think they are the prime factors for the physician's success. If the remedy is successful, who gets the credit for its virtue? Certainly not the physician who has spent hours of toil to equip himself for the labor in this noble work of ours. The majority of our patients who receive prescriptions can read them with far more intelligence than we give them credit for, and if perchance it be for one of these proprietary remedies, they know all about it and will buy a bottle of the "stuff," as they are pleased to term it.

We, as physicians, have a right to protect ourselves and patients; first ourselves from the multitude of these semi-secret preparations and nostrums that are flooding the market, and our patients from the exorbitant prices of these worthless preparations, and the evil that may result from their use.

How are we to accomplish this protection? Some of these manufactories are vast incorporations, representing thousands of dollars, advertising through the mails, on the public highways, byways, and everywhere.

We can do a great deal by ceasing to patronize them, ceasing to give them testimonials, and thereby live as free men, and not allow some corporation to dictate to us what we shall prescribe for those who apply to us for aid. The physician and pharmacist have it in their power to stop this insult to the fair name of our profession. Will they do it?

The progressive physician will not be satisfied with the investigations and researches of others down through the past centuries, but push to the front and labor for a higher standard in our profession, and thereby uphold it in all the dignity that is due it.

This evil is spread broadcast throughout our land, and is a serious one which demands the attention and interest of all energetic physicians.

We have a remedy for this malady. Will we use it? I refer to our National Dispensatory, with all its numerous aromatics, essences, elixirs, emulsions, etc., and various other preparations too numerous to mention, the result of years of experience and study, drugs of uniform strength and purity. We can prescribe them with implicit confidence, and by the assistance of a reliable and competent pharmacist can expect and get the best of results from their use.

With the National Formulary as our guide and standard we are not likely to err. Why all these years of labor and expense, if we so far disregard our National Formulary that we cease to use it and follow blindly after some preparation the contents of which we have no knowledge. With the use of this Formulary we can expect a greater standard in medicine, more competent pharmacists, less strife between physicians and druggists, greater benefit to our patient, and far more profit and satisfaction to ourselves. We can give the pharmacist an opportunity to exercise and show his skill, and allow him the chance of receiving the reward for his labor instead of patronizing some firms who have no interest in either the physician or patient, and care not a whit for the physician's reputation or success. Let each one feel that this responsibility rests just as much with himself as another, and by mutual work this abominable nuisance will fade away, and we will have right, honest, and legitimate medicine, while quackery and patent nostrums will soon be a thing of the past.

CONTAGIOUS EYE DISEASES AND PREVENTABLE BLINDNESS, THEIR ETIOLOGY AND THE METHODS FOR THEIR PREVENTION.

By J. Morrison Ray, M. D.
Louisville, Ky.

The prevention of disease must always be with us the most important of our duties. While the performance of some masterly operation will give much reputation to the surgeon, or the skillful conduct of a serious attack of illness will add greatly to the renown of the practitioner, the prevention of epidemics or the enforcement of rules whereby thousands can be saved from the spread of contagious diseases is far more honor. The work of Jenner and his followers has added more to human life and happiness than the combined work of the world's greatest surgeons. Therefore any methods that have for their aim the prevention of disease, or the establishment of principles by which the dangers of contagion can be lessened, should attract the attention not only of physicians individually, but of their medical organizations.

Among the large class of the afflicted with whom medical men are daily thrown in contact none deserve more attention and consideration at their hands than the blind.

When the statement is made, based on statistics gathered from reliable sources, that blindness is on the increase, and that of this number nearly thirty per cent are blind from diseases that are almost absolutely preventable, it is time that the subject should be considered both in a scientific and legislative manner, and the profession and the people made

familiar with the character of such diseases and the best methods for their prevention.

Dr. Howe, of Buffalo, N. Y., has collected the statistics from the census bureau, and shown that in 1870 the United States, with a population of 38,558,371, contained 20,320 blind; in 1880, with 50,155,783, contained 48,929 blind; in 1890, with 62,622,250, contained 50,568 blind. These reports show a surprising increase from 1870 to 1880; the population during that time increased 30.09 per cent, while blindness increased 140.7 per cent; from 1880 to 1890 the population increased 24.86 per cent, and blindness 3.3 per cent. The difference between the returns for these two decades is certainly in error, and of little importance from a scientific standpoint.

Returns from the State of Kentucky for 1880 show a population of 1,648,690, with 2,116 blind; for 1890, 1,858,635, with 1,976 blind, an increase in population of 12.12 per cent, and a decrease in blindness of 6.6 per cent.

Prof. B. B. Huntoon informs me that he obtained from the census bureau the names of nine hundred blind under twenty years of age, and on investigation found that a large proportion of the names and addresses were improperly given, and that other diseases were classified under the head of "blindness." Therefore such returns are not to be relied upon.

The kind of statistics that concern us most are those relating not so much to the number of blind but to the causation of blindness, and particularly to those the result of communicable diseases. In Europe a number of such examinations have been made. Fuchs found in the blind asylums of Germany 25.83 per cent, and in Austria-Hungary 20.47 per cent were the result of contagious eye diseases. Such statistics do not seem to have been extensively collected in this country. Howe, in the New York State Institution for the Blind, with 128 inmates, found 23.4 per cent blind from purulent ophthalmia of the new-born. Prince, in the Illinois

State institution, with 222 inmates, found 62.9 per cent blind as the result of contagious eye diseases.

I have recently, through the courtesy of Professor Huntoon and the assistance of Dr. W. O. Bailey, examined the pupils of the Kentucky Institution for the Education of the Blind. Of 153 examined 119 were white and 34 colored. Of this number 36.6 per cent were blind from diseases classified as preventable. The relative percentage of the white and colored is quite noticeable; of the latter 23.6 per cent, and of the former 40.3 per cent were the result of communicable diseases. Following out the proportion shown by this examination, there are, of the 1,976 blind in Kentucky in 1890, 723 cases doomed to lifelong darkness as a result of diseases that experience has proven to be preventable.

It may be broadly stated that all inflammations of the conjunctiva accompanied by the formation of a secretion are contagious: the varieties that lead to serious results are, in the order of their frequency, first, ophthalmia neonatorum, or the purulent conjunctivitis of the new-born; second, trachoma, or so-called granular lids and its sequelæ; third, purulent conjunctivitis of adults, or so-called gonorrheal ophthalmia.

The unfortunate results of ophthalmia neonatorum are observed not only by the eye specialist, but by every practitioner doing extensive obstetrical work. It is due to contamination during birth, and occurs in cases where there has been absolutely no history nor possibility of gonorrheal infection.

Trachoma or granular lids is an exceedingly contagious form of eye disease, and frequently infects many members of a family or public institution before its dangers are realized. Many do not comprehend the fact that this form of eye disease is communicable, and by the use of roller-towels and universal wash-basins many cases of blindness result. Thus I have seen it occur in orphan asylums, leading to extensive

destruction of sight in some, and in others impaired vision that later in life detracts from their capacity to earn a livelihood.

Gonorrheal ophthalmia, the third variety, rapidly leads to destruction of sight, and is due to direct infection, in most instances the result of uncleanliness, ignorance, and neglect. Occasionally cases of purulent inflammation are encountered in which there is no history of gonorrheal infection, and where the specific organism is absent. Yet experiments have failed to produce such symptom by inoculation with pus of a non-specific character.

The prevention of the spread of trachoma and gonorrheal inoculation of the conjunctiva must be accomplished by educating the people as to their danger, and by isolating those already infected. All residential schools, orphan asylums, and eleemosynary institutions generally, should have the conjunctiva of all applicants for admission thoroughly examined before they are allowed to enter.

Ophthalmia neonatorum is the variety of contagious eye disease I wish particularly to emphasize, and to claim that experience and practice has shown that this class of cases can by proper methods be prevented. Horner has shown that since 1865, when precautionary measures were instituted in Switzerland, not a single case of blindness from purulent ophthalmia of the new-born has applied for admission into the State blind institution under his control.

Prophylaxis was early recognized as possible in these cases. Gibson in 1808 proclaimed the importance of such measures, and stated that the following methods should be employed: (1) Control the vaginal discharges as early as possible during pregnancy; (2) at the time of delivery remove the injurious secretion from the vagina; (3) immediately after delivery clean the eyes of the infant with a fluid which shall remove the injurious material or destroy its action.

Various means to accomplish these results have been tried since that time, such as irrigating the vagina with different antiseptic solutions before and during labor, and thoroughly cleansing the eyes as soon afterward as possible. Notwithstanding these precautionary measures numbers of cases were still found to appear. Credé, after trying such methods, found that the best results were obtained by the use of nitrate of silver dropped into the eyes soon after birth. The steps he employed were as follows:

After the child has been washed in the usual way the eyelids are cleansed with a piece of cotton dipped in clean water and a single drop of a two-per-cent solution of silver nitrate is let fall upon the eye between the lids. While some slight redness and congestion of the lids may follow such treatment for a few days, no serious consequences have been known to follow.

The results obtained by this method justify its adoption by all maternity hospitals, and also in private practice where there is a suspicion of gonorrhea or a profuse leucorrheal discharge. Credé reduces his percentage of cases of infection from 10.8 per cent to .01 per cent by this method. Haab has shown that it reduced the number of cases from 9 per cent to 1 per cent. At the Dresden Lying-in Hospital out of 1,002 cases only 7, or .69 per cent, contracted ophthalmia blenorrhea, while at the Louisville City Hospital, where only cleanliness is used, from inquiry I find that about one in every six is followed by purulent infection. Fuchs, in his prize essay on blindness and its prevention, gives an extensive table showing the results of cleanliness and the Credé method with the result far in favor of the nitrate of silver.

What stronger proof can be offered than these figures, showing as they do the almost complete eradication of such a formidable disease; one that under the most careful and scientific treatment leads to blindness in many cases. It is well known by ophthalmologists that, when it occurs in a

marasmic, delicate, or premature child, blindness from sloughing of the cornea is sure to follow. Treatment by thorough cleansing and nitrate of silver to control the pulse flow may lessen its ravages when once established; but how much better are measures that, while offering immunity, subject the patient to no danger.

In England, as a result of agitation and instruction of physicians and nurses upon the dangers of purulent conjunctivitis in the newly born, there has been a decided lessening in the number of blind. In 1871 there were in the United Kingdom 1 blind to every 1,031 of population. In 1891, 1 to 1,235.

From an economic standpoint the subject of contagious blindness is a most important one. Assuming that the census returns from the State of Kentucky are correct, and taking the percentage of blind from contagious diseases now in the State institution and applying it to the 1,976, as shown by the returns for 1890, there are in this State 723 cases of blindness due to preventable diseases. Thus there is lost to the community not only the earning capacity of these 723 persons, but, at the rate of $280 per head, as it now costs for their education, over two hundred thousand dollars annually.

Many cases of labor are in the hands of nurses and ignorant midwives who know nothing of prophylaxis or the treatment of eye inflammations in the infant, yet, when the disease shows itself in the first few days after birth, advise the use of breast-milk or poultices, and when the physician is called to the case the eyes are irremediably lost. Recognizing this fact, many of the foreign countries and six States of the Union have passed laws requiring nurses and midwives when they encounter such cases to report them immediately to a qualified physician.

The American Ophthalmological Society and the American Medical Association are urging the passage of laws regulating the practice of nurses and midwives in their care of the eyes

of infants, and it is at the request of the chairman of a committee from these societies that I have brought up the subject for discussion.

The only sure way to accomplish results is by legislation. Such a law Dr. Howe, the mover in this reform, succeeded in getting passed by the legislature of the State of New York. It is as follows:

"The people of the State of New York, represented in Senate and Assembly, do enact as follows:

"Section 1. Should any midwife or nurse having charge of an infant in this State notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse having charge of such infant to report the fact in writing within six hours to the health officer or some legally qualified practitioner of medicine of the city, town or district in which the parents of the infant reside.

"Section 2. Any failure to comply with the provisions of this act shall be punished by a fine not to exceed one hundred dollars, or imprisonment for six months, or both."

While such a law does not deal with members of the medical profession who may neglect such cases, yet the fact that the subject has been of sufficient importance to be legislated upon will impress them with the gravity of such cases and the necessity for prompt action in their care.

A law similar to that in force in the State of New York has been drafted by the committee from the American Medical Association, and it is asked that this Society take such action as may bring about its adoption by the legislature of the State of Kentucky.

While many may urge that it is not necessary in this State because most cases of labor are first seen by physicians, yet as foreign immigration increases midwives multiply, and such action will tend to attract attention to the dangers of such a disease, and some helpless infant be saved from hopeless blindness, and the State relieved of the burden imposed thereby.

DISCUSSION.

DR. T. C. EVANS, Louisville: I am glad Dr. Ray has brought before the Society the legal aspect of ophthalmia neonatorum. He has well said that it is one of those diseases that is amenable to treatment if seen in time. A few hours means a great deal to the patients. They either recover perfectly or are afflicted with lifelong blindness. If I am in order, Mr. President, I will offer the following resolution, carrying out the idea suggested by Dr. Ray in regard to this subject:

"WHEREAS, There are in this State nearly 1,000 persons blind from ophthalmia neonatorum, and

"WHEREAS, This unfortunate result is largely preventable, being due to the neglect of nurses and midwives; therefore be it

"*Resolved*, That it is the sense of the Kentucky State Medical Society that the State Board of Health should, through its Secretary, draft and present to the next General Assembly for their enactment a suitable law, with proper penalties, requiring nurses and midwives to report to the Health Officer or some legally qualified practitioner of the city, town or district, all cases of inflamed, swollen, or reddened eyes occurring in infants under their charge within six hours after the discovery of such conditions."

Many of us know that medical legislation is not a very easy thing to secure. I have had considerable experience with it, and know that it is tedious and disappointing; but I think, if this matter is intrusted to the excellent Secretary of our State Board of Health (Dr. McCormack), we will have a suitable law enacted. He is the most successful lobbyist I have ever known. He has secured for us medical legislation in the past when there was little hope of obtaining it. If we secure the passage of a law, it may not be a panacea for all these ills, but, as the essayist has said, some good will come of it by simply having the cases of ophthalmia neonatorum reported, as they occur largely in the hands of midwives and nurses and are treated by them, and the family physician or specialist does not see them until the cornea has already sloughed; then it is too late.

PATHOLOGY AND TREATMENT OF PURULENT INFLAMMATION OF THE CONJUNCTIVA.

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Though the subject under consideration has been written upon and discussed with such frequency that there is hardly a journal devoted to general medicine that does not have several articles upon it a year, and though many and even most of them are but reproductions one of another, still the importance is so great that time spent in its discussion ought never to be considered ill spent.

The statistics presented by Dr. Ray can not fail to impress every one with the fact that there are a great many people who are blind as a result of this disease, and that the loss of sight could probably have been prevented in a large proportion of these had there been proper prophylaxis and treatment.

Purulent conjunctivitis is an inflammation of the conjunctiva which originates in contagion from virulent secretion, and whose own copious purulent secretion is likewise contagious. This is almost identical with the definition of Fuchs, who says, however, that it originates in contagion from gonorrheal virus. I have left out the words gonorrheal virus, for the investigations of bacteriologists show us that it is not always of a specific nature.

It is now established beyond reasonable doubt that the disease is developed by direct transfer of virulent matter to the conjunctiva, whether by hand, by linen, or by sponge; from the genito-urinary system or from another eye affected

with purulent ophthalmia; from leucorrhea, gonorrhea, or gleet.

Kroner examined ninety-two cases in which the gonococcus of Neisser could be found in sixty-three after careful search. He states that the clinical history was about the same in all of these cases; but where the germ was absent the course was milder and shorter. Weeks found that by far the majority and all the severe forms of his cases of ophthalmia neonatorum were due to gonococci and were contracted during or shortly after birth. The healthy secretions of the lying-in woman do not produce this disease. At least we are justified in believing that they do not, for experiments have been made in which they failed to excite inflammation. Zweiful placed in the eyes of six children the lochial discharge of mothers in whom there had been no syphilis, gonorrhea, or leucorrhea, and five of them escaped without any trouble, while the sixth had diphtheritic inflammation; but it was discovered that the father was in bed in the same room with diphtheria. Piringer states that the infective power of the secretion was weakened by diluting it with one hundred volumes of water. But Noyes says that a secretion which has been diluted with one thousand parts is still active. Piringer found also that drying destroyed the activity, and that the weaker the virulence the longer the period of incubation and milder the attack.

Purulent conjunctivitis presents itself at different ages, and is generally divided into two classes: ophthalmia neonatorum, and ophthalmia adultorum, or gonorrheal. Every practitioner sees cases of vaginal discharge in little girls from two to ten; and occasionally a purulent ophthalmia, not always specific, develops in one of these. So we have three classes of purulent inflammation of the conjunctiva in which the disease is essentially the same. Usually the adult cases are the more severe, but this is not always the case. Therefore it is the purpose of this paper to consider them all

under one head, Purulent Conjunctivitis, making reference to an occasional difference in the use of certain drugs in the adult and the infant.

In an eye affected with purulent inflammation the blood-vessels are distended with blood corpuscles; there is great exudation of serum and chemosis due to this exudation into the episcleral tissue. The discharge contains broken-down epithelial cells, granular corpuscles, large numbers of pus cells, and bacteria.

After infection has taken place there is a period of incubation which varies, according to the virulence of the inoculation and the general condition of the patient, anywhere from a few hours to a few days. The first symptoms are reddening and swelling of lids with difficulty in opening them. At first the secretion is watery and contains little or no pus. The conjunctiva, owing to the infiltration, becomes rough and tense. After this the swelling of the lids gradually subsides and the conjunctiva becomes less tense, and at the same time profuse purulent secretion sets in. In the milder cases the bulbar conjunctiva is only slightly involved, but in the severer forms we sometimes have such great chemosis that the cornea is completely hidden. Corneal trouble, when it arises, is due to three factors which are all more or less concerned; pressure of the swollen lids, action of the secretion, and continuity of inflammation. The first intimation of corneal involvement is generally a more or less diffuse haze, and this may be followed by circumscribed areas of denser infiltration, and these in turn break down into ulcers. Owing to the chemosis about the cornea furnishing a gutter for the collection of pus, we are more apt to have marginal than central ulcers.

Since the methods of prophylaxis and the efficacy of the same have been so exhaustively presented in the preceding paper, I will take up merely the treatment of the disease itself. The first and greatest element in the treatment of

this affection, whether in the adult or the infant, is scrupulous cleanliness. It may be that once every hour or two will suffice, or perhaps it will be necessary to cleanse every ten or fifteen minutes night and day. Some surgeons prefer boracic-acid solutions, some bichloride of mercury, and some carbolized solutions. Whichever of these we may select, it is important that we exhibit great gentleness and care not to denude the cornea of its epithelium, for if we do this we increase the danger to the cornea.

At first, when the swelling of the lids is great and the discharge watery, the application of cold and diligent cleansing furnishes all the treatment that is necessary. Cold reduces the swelling and retards the procreation of the micro-organisms. The best way of applying it is to place a block of ice by the side of the bed and lay pieces of linen about two inches square upon it, and transfer them to the eye of the patient, leaving one on as long as it is cold, then replacing it by another. Sometimes this must be kept up constantly, while again only for a half hour at a time at intervals throughout the day and night. This is generally very agreeable to the patient and furnishes great relief. During my residence in the Manhattan Eye and Ear Hospital I had charge, under various surgeons, of about thirty cases of purulent ophthalmia. The two solutions which were used most frequently for cleansing were the one to ten thousand bichloride and the saturated solution of boracic acid; and it seemed to me that in the cases of ophthalmia neonatorum it made no appreciable difference which one was used; but in the adult cases the best results were obtained from the use of the mercurial solution. In solutions of one to five thousand Cohn says it has been proved that it can set up parenchymatous keratitis in a healthy cornea after incision has been made. Therefore, he says that in purulent ophthalmia, where the resisting power of the cornea is greatly diminished, it is probable that its surface will be injured,

and, as this is particularly to be avoided, he advises against the use of strong solutions. There are cases, however, in the adult in which some benefit seems to be derived from the use of stronger solutions, one to two thousand, and even one to one thousand, kept up for a day or two. But as a rule the use of solutions stronger than one to ten thousand is to be deprecated.

Sometimes, in order to relieve pressure and enable us to cleanse properly, it is necessary to perform a canthotomy at the outer angle.

In the second stage of the disease, when the swelling of the lids is reduced and the secretion thicker and more purulent, it is necessary for us to do more than cleanse and apply cold. Here we call in nitrate of silver, which is the best remedy of all for reducing the conjunctival swelling and causing a cessation of the discharge. It is almost universally believed to be of great value when properly used. But here the question arises, what is the proper use of nitrate of silver? And the answers to this are various.

Dr. Montgomery, of Chicago, uses strong solutions, sixty grains and upward, when the secretion becomes thick and purely purulent, and keeps it up until the disease is controlled. He makes no difference between the treatment of the adult and that of the infant. Dr. Noyes, during the same period, brushes a five- or ten-grain solution thoroughly over the conjunctiva, and sometimes leaves a five-grain solution with the nurse to be dropped into the eye three times a day. He uses the mitigated stick when there is a very thick secretion and a papilliform swelling. Meyer, after the purulent nature is once made clear, brushes an eighth-grain solution, and sometimes uses the mitigated stick. Noyes says a ten-grain solution can be freely applied when there is no croupous exudation, and the mitigated stick when there is great development of papillæ. Juler says the best and most effectual treatment in adults consists in the

daily application of the solid stick together with frequent cleansing and the constant application of iced carbolized solutions. In infants he uses a four-per-cent solution and washes away the excess. Dr. Gruening says if he were deprived of nitrate of silver he would not know how to treat ophthalmia neonatorum successfully, and he thinks it should be used in a one- or two-per-cent solution. Dr. Andrews says, as a result of his experience, that where the disease was not due to gonorrhea he thought the eyes were injured by silver; but when the disease was gonorrheal silver was invaluable. Weeks placed it near the head of the list of antiseptics, having found that it destroyed the vitality of the staphylococcus pyogenes aureus and typhoid bacillus in four seconds in a ten-per-cent solution, in eight seconds in two-per-cent solution, and in twelve seconds in one-per-cent solution. He thinks it excellent in purulent ophthalmia.

These are fair samples of opinions in regard to the use of silver in purulent ophthalmia. The method with which I am most familiar is brushing a five- or ten-grain solution over the conjunctiva once or twice a day according to indications. I think the silver ought always to be applied by the physician and the effect carefully watched. If the symptoms are aggravated by it, then of course we must discontinue it; but if they improve, our remedy has been well chosen.

Sometimes after applying silver we notice no change in the condition of the eye, and then we get improvement from increasing the strength. Silver is not contra-indicated by ulcers of the cornea, but is of use in rendering less necessary the application of cold, which is at this time dangerous owing to its depressing effect on the circulation. Vaseline flooded between the lids seems to have a favorable influence on the disease. This is due to its affording some protection to the cornea, and enabling the secretion to flow more freely from the eye.

When corneal trouble arises we treat it according to the rules for independent corneal affections, using atropine or eserine, or both.

When one eye is affected the other should be covered with a Buller's shield, a watch-glass fastened on by means of adhesive plaster. In fastening this on we should leave an opening at the outer canthus for the access of air. This is not practicable in the infant, and the best we can do is to caution the nurse not to allow the child to rub its eyes.

The general health of the patient must be looked after in the treatment, for it is frequently observed that an eye which has been steadily growing worse dates its improvement from the improvement in the general condition.

It is important that we caution the patient and nurse about the contagiousness of the disease, and tell them to destroy all the rags and sponges used in the treatment.

The prognosis is very grave in adults, for even under most favorable circumstances we may expect a large proportion to result in either total or partial loss of vision. Klein reported that out of forty eyes treated by him sixteen became totally blind, nine retained some vision, and five had useful vision, or could have it by an operation, while in ten the cornea escaped. Out of two hundred and fifty eyes treated at Moorfields, thirty were lost entirely, while the cornea was badly damaged in seventy-four. In infants the prognosis is much better, and it is seldom that an eye is lost when treatment is inaugurated before the cornea is involved, and even when it is involved a wonderful improvement frequently takes place owing to the recuperative powers of childhood. And even in the adult the patient comes out frequently with better vision than we would think possible. I have seen one case which pursued a violent course, having a large ulcer in the lower portion of the cornea, together with a general corneal haze, the ulcer going on to perforation, and yet the patient came from the attack with $\frac{20}{20}$ vision. This case, by the way, was

one in which the discharge was not checked by bichloride solution of strength varying from one to ten thousand to one to two thousand, nor by ten grains nitrate of silver, but in which it almost ceased after the use of an alum wash for about thirty-six hours. After the acute symptoms have all subsided and the ocular conjunctiva has resumed its normal state, we frequently have left a granular condition of the palpebral portion. The best treatment for this condition is tannin and glycerine, forty grains to the ounce. If this fails to relieve it, sulphate of copper may be tried.

In conclusion, I will say that I believe all cases of purulent conjunctivitis in the adult, with an occasional exception, are benefited by the use of nitrate of silver at some time in the disease. In the infant, however, there are many cases which get well, and many which would probably do so without the aid of silver, and an eye has occasionally been met with which was injured by even a careful use of the caustic. Therefore we must not apply silver just because we have made the diagnosis of purulent ophthalmia, but must let the appearance of the conjunctiva and lids and secretion determine whether we shall use it or not.

Peroxide of hydrogen aids us in cleansing the eye, but it exerts no special influence in the disease and leaves the tissues still swollen and boggy. Iodoform at one time had some enthusiastic advocates, but at present it is not used much except when other things have failed, and we look around in desperation for something else to do.

A CASE OF CYSTICERCUS OF THE VITREOUS.

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This affection being so rare in America, England, France, and countries other than Northern Germany, I feel justified in reporting a case that has come under my observation recently.

Mrs. F., aged forty-two, of Irish parentage, consulted me concerning her left eye. January last she had some severe acute inflammation of her left eye, in which there was intense pain and edema of the lids, which lasted for some weeks. She now has vision of the left eye $\frac{5}{40}$ with no improvement by glasses. She has some scars of upper part of cornea simulating those found in trachoma, with slight pannus. I was surprised on everting the lid to find no indication of her ever having had trachoma. Vision right eye $\frac{2}{200}$ and eccentric. She said her right eye had been blind—following a spell of sickness—since twenty-seven years ago. She did not come to consult me concerning her right eye, yet, as a matter of routine, I examined it. I found all the media perfectly clear. Just at or over the right macula I discovered a sac or cyst, pedunculated, the pedicle being attached to the retina above and external to the macula, the body of the sac extending down and in, over the region of the macula. The sac with its pedicle appeared a bluish-gray and opaque, except a part of the wall toward me, about the size and shape of the optic nerve entrance, which was transparent and through which the deeper or other wall could be seen. The eye was emmetropic with the ophthalmoscope. The

highest or most prominent part of the sac, just at the transparent part referred to, could be seen best with a +10. D. showing an elevation of about 2.3 millimeters. The other cyst wall could be seen through this transparent portion best with about a +2. D. showing an elevation of about .52 millimeter. The sac was ovoid in shape with the edges at some points serrated, and at one point down and in there was quite a projection. Over this sac small blood-vessels could be seen; one up and in could be traced to a large retinal vessel close by. No motion could be discovered in this opaque cyst. Forming something of a crescent from the lower and outer part of this sac was a transparent, reddish cyst; at the upper part of this cyst could be seen two spots looking like air-bubbles, which were no doubt the parasite's suckers. This cyst, when watched closely, could be seen to have a distinct rhythmical motion; a spot of pigment beneath it would appear and disappear; the motion was perfect. Above the attachment of the pedicle of the cyst could be seen two white crescent-shaped spots, no doubt the points of entrance of the parasite. The retina between the cyst and optic nerve presented the appearance of a recent detachment. Several large vessels run from the nerve direct to the sac, some of them disappearing under and reappearing on the other side. There were many more large vessels taking this course than usual. This would probably indicate that the trouble is of long standing. The vitreous seemed to be detached over the optic nerve entrance.

Mrs. F. gives a history of several serious attacks several years ago of what she called congestion of heart and lungs. For six or seven years up to January last, when her left eye was so badly inflamed, her health had been very good. She thinks she is going through her "change." The left eye is usually somewhat inflamed every four weeks.

This case, besides being the second so far as I know of reported in America, presents other points of interest. Could

this parasite possibly have been the original cause of the loss of vision of the right eye twenty-seven years ago? I think this possible and probable. The vitreous is clear and but little damaged; but small parts of the retina and choroid are damaged. The parasite, from the appearance of the parts, seems to have left its old bed and is migrating. Mrs. F. does not remember of ever having had any pain in her right eye. Could the disease she has had in her left eye be sympathetic? Sympathetic affections have their exacerbations and their times of quiet as we all know.

Foster, Encyclopedic Medical Dictionary, page 1237, says: "Cysticercus Cellulosæ is the larval stage of tænia solium. It has a quadrangular head, a long cylindrical body, and an elliptical caudal vesicle, and is from ten to fifteen millimeters in length."

Mauthner describes the animal as follows: "The worm is provided at its posterior end with a round cyst-like formation which acts as the receptaculum scolicis, into which the animal can withdraw, presenting when in this position the appearance of a round, whitish body. A small hole marks the mouth of this small receptacle. When the animal protrudes its head and neck out of the receptacle its body appears to be sprinkled here and there with calcareous deposits and presents sometimes a smooth and sometimes a wrinkled surface. The body decreases in size toward the neck, to which is attached the head, with its four flattened-down but angular projections. A round-shaped snout can be projected by the animal from the center of its head, and this latter is provided at its base with a double row of hook-like tentacles which are capable of retraction. Each of the angular projections of the head is, moreover, provided with a rounded sucking apparatus."

Schmidt-Rimpler, page 276, says the embryo enters the stomach of the suitable host in the food or water, loses its covering through the action of the gastric juice, bores into

the blood-vessels with its hooks and begins to wander. Finally it becomes settled, and now begins the second stage of its development, in which it is known as cysticercus. It is converted into a vesicle with fluid contents. All authors agree that they travel by the blood-current. Cysticerci may occur in any part of the eye or orbit. They have been seen in the orbit, lids, conjunctiva, iris, lens, vitreous, choroid, and retina. They are found more often in the posterior part of the eyeball than in the anterior. They are quite common in Northern Germany, where uncooked meats are eaten; less often in Southern Germany, France, and Italy. There have been three cases reported in Austria. Brudenell Carter says none have been seen in England, but Soelberg Wells reports a case in his book, page 328. In Northern Germany Graefe saw eighty cases in eighty thousand patients, or one in one thousand, in the deeper tissues of the eye; three in the anterior chamber; five beneath the conjunctiva, and one in the orbit. Hirschberg in six months saw 2,100 new patients, in five of which he saw cysticercus, or one in four hundred and twenty cases of eye disease.

Of the one other case seen in this country, reported by Dr. Minor, Loring, on page 188, says: "From the ophthalmoscopic appearances there was reason to believe that it was a true case of cysticercus, although it was not absolutely proved to be so." Yet from Dr. Minor's description of the case and the ophthalmoscopic appearances (page 193, Loring), I do not think there can be any doubt of its having been a case of cysticercus cellulosæ. How long a cysticercus can remain in an eye is in doubt. Cases of two and four years' standing are common. Von Graefe saw a case in 1856 which was twenty years afterward seen intact by Hirschberg. Others have reported cases of long standing with vision nearly perfect. My case, as I stated before, is possibly of twenty-seven years' standing. Usually, though, in from fifteen to twenty months irido-cyclo-choroiditis follows, and

sometimes panophthalmitis with total loss of the eye. Von Graefe and Hirschberg state that there is not much danger of sympathetic inflammation, although sympathetic irritation is often present. Jacobson reports sympathetic amblyopia. Two cysts have been seen in one eye, but none reported of both eyes being involved. Patients with cysticercus do not have tape-worm. The presence of this parasite in the eye is so dangerous to the vitality and the usefulness of the organ, that its removal has been undertaken and with success, but not with very flattering after-results when it is located in the posterior part of the organ. When in the iris a section of this membrane can be removed that holds the parasite.

DISCUSSION.

DR. J. MORRISON RAY, Louisville: As I have never seen a case of cysticercus of the eye, I am not in a position to say much about it. We see many different changes about the fundus of the eye that we are not able always to explain, and as cysticercus is such an exceedingly rare disease it seems to me that the symptoms described should be accounted for by the result of some inflammatory disease of the vitreous or of lymph exudation hanging from the retina. In fact, it is said that cysticercus does not occur except in those who eat raw meat. This explains why cysticercus is so common in certain parts of Germany, and it had a great deal to do with the exclusion of American pork for a long time from Germany. It seems to me, as the eye has not been enucleated, and the specimen has not been examined to prove absolutely that the condition seen inside the eye was cysticercus, and as cysticercus is so rare, the symptoms can be accounted for by the underlying fact of there having been in the eye some inflammatory disease or some lymph formation about the vitreous or probably in the retina.

DR. J. G. CARPENTER, Stanford: While I do not doubt the diagnosis in this case, I would like to have the doctor give us the differential diagnosis between cysticercus in the retina and a tumor of the retina. I saw a similar case to the one reported at the Manhattan Ophthalmic Hospital diagnosed by experts.

DR. CHEATHAM (closing the discussion): Dr. Ray states that a positive diagnosis in this case can hardly be made without enucleation and subsequent examination of the specimen; but so far as the symptoms of cysticercus of the retina are concerned this case fills the bill. After examining the case some time I got the rhythmical motion which should be gotten in cases of cysticercus, and it was as perfect as could be.

The question sprung by Dr. Carpenter is one that is difficult to answer. We often have beginning tumors of the retina where it is impossible to make a diagnosis between them and a detached retina. I never saw a case of detached retina so pedunculated as this was. So far as the diagnosis can be made without enucleation I am firmly convinced it was a case of cysticercus.

SOME SYPHILITIC DISEASES OF THE EYE.

By Dudley S. Reynolds, A. M., M. D.
Louisville, Ky.

The syphilitic diseases of the eye should be divided into classes, and for the sake of convenience I should prefer to consider them as of the acquired and inherited. Then I should divide the inherited types: First, those in whom the disease has been so recently acquired by the mother as that the secondary roseola appears some time after the birth or about that time; second, those in whom the syphilitic evolution has been apparently completed in the mother before pregnancy. Just how to reach that class of the third and fourth generation of syphilitic patients it is difficult to formulate rules, and I prefer making my third division embrace the victims of remote inheritance. If the syphilized mother has apparently recovered and gives birth to a child with certain structural defects, such, for example, as those imperfect developments of the lymphatic system described by Dr. Formad in his report on the anatomical peculiarities of struma, the muscular deficiencies, and the thin and imperfect development of the arterial walls, then how shall we expect to find marks of inheritance in those of the third generation of syphilitic parents?

It is distinctly and emphatically stated by nearly every recent writer on syphilis that none of the normal secretions of the body contain the virus. It is manifestly clear, therefore, the spermatic fluid can never be accompanied by the virus of syphilis excepting where abrasions, ulcerations, or gummatous deposits exist, either in some part of the testicle

or the walls of the excretory ducts. Since the common period of incubation of the syphilitic virus has been fixed at from twelve to forty days—shortest ten, longest forty-six days (Keyes)—it is clear that abortion must necessarily follow in cases where the virus of syphilis reaches the ovum before placental attachment has been established, and every one knows that syphilized women can not bear children conceived during the periods of activity of the syphilitic virus. It is an equally common observation that men in the most active periods of syphilitic infection actually beget perfectly normal, sound, and vigorous children. It is already an exploded superstition that the father may communicate syphilis to his offspring without first infecting the mother. I have many times seen children born of syphilized women about the time of the appearance of the secondary eruption, and more frequently before that period.

Every obstetrician will testify that a pregnant woman seldom goes two months with a secondary eruption of syphilis without discharging the contents of the uterus. Who has not observed the miscarriages and abortions of syphilitic women?

Mr. Jonathan Hutchinson, in his great Clinical Memoir on Certain Diseases of the Eye and Ear, consequent on inherited syphilis, publishes at page 25 the following Aphorisms Respecting Iritis in Infants:

1. The subjects of infantile iritis are much more frequently of the female than of the male sex.

2. The age of five months is the period of life at or about which syphilitic infants are most liable to suffer from iritis.

3. Syphilitic iritis in infants is often symmetrical, but quite as frequently not so.

4. Iritis, as it occurs in infants, is seldom complicated, and is attended by but few of the more severe symptoms which characterize the disease in an adult.

5. Notwithstanding the ill-characterized phenomena of acute inflammation, the effusion of lymph is usually very free and the danger of occlusion of the pupil great.

6. Mercurial treatment is most signally efficacious in curing the disease, and, if recent, in procuring the complete absorption of the effused lymph.

7. Mercurial treatment previously adopted does not prevent the occurrence of this form of iritis.

8. The subjects of infantile iritis, though often puny and cachectic, are also often apparently in good condition.

9. Infants suffering from iritis almost always show one or other of the well-recognized symptoms of hereditary taint.

10. Most of those who suffer from syphilitic iritis are infants born within a short period of the date of the primary disease in their parents.

In the foot-notes Mr. Hutchinson says he has known the second eye attacked in a patient already under the influence of mercury for the treatment of the first eye affected. He has in a number of instances observed acute iritis occurring during the period of actual ptyalism. I have seen a number of such cases myself. It is a well-established fact the poorly nourished subjects of inherited syphilis are not those most likely to suffer local lesions in the eye. This class of subjects seems to suffer in the digestive and assimilating organs, and have those artistic decorations of the skin which the dermatologist delights to exhibit as brilliant illustrations of diagnostic skill.

Syphilitic iritis notoriously occurs most frequently in the periods of the advancing secondary eruption, while inflammations of the optic nerve and retina are vastly more common in the later stages of the disease. Inflammations of the cornea are almost as common as any other localized syphilitic disease of the eye.

Keratitis is, however, a more remote manifestation of syphilitic infection than iritis, and, although interstitial keratitis occurs in the subjects of acquired syphilis, it is by no means commonly due to syphilitic infection in this class of subjects; *per contra*, interstitial keratitis of syphilitic origin

is accompanied by disturbances of the corneal epithelium, which presents the appearance of ground glass, and this is never seen in subjects of acquired syphilis. Now I feel like asking the question, Is it ever seen in the subjects of inherited syphilis where the child was born before or about the period of the secondary evolution of syphilization? It seems to me this distinction must be made, that mucous patches in the conjunctiva and on the surface of the cornea are often seen as early manifestations of the tertiary period of syphilization, and especially in those who have been born with the disease; yet in young adults in the same period of syphilization, where the disease was acquired, these mucous patches are occasionally seen. I have known a number of instances where great injury resulted to the eye from local treatment for the relief of clearly defined and unmistakable mucous patches in persons who at the time had no other manifestation of syphilitic infection excepting a small patch or two in the mouth. It is, therefore, of great importance that a diagnosis should be made at the outset in order that the proper constitutional treatment may be commenced at once, and that no local interference with the mucous patches in the eye shall be attempted.

Gummatous formations in the cornea are not infrequently observed at the termination of the vessels in the limbus of the conjunctiva. Gummatous abrasions are vastly more frequent in advanced syphilis than in the earlier periods of infection; these gummatous formations at the periphery of the cornea are, therefore, observed more frequently in children of five or six years of age than in younger persons. Interstitial keratitis seldom occurs as early as the fourth year, although Mr. Hutchinson reports several cases occurring at the age of one year. It is seldom delayed beyond the twelfth year, yet it is occasionally seen, as in one of Mr. Hutchinson's cases, as late as the twenty-sixth year of age in a person with characteristic teeth.

Many of the best writers believe inherited syphilis tends to run a milder course, and offers less protection against subsequent liability to syphilitic infection. Latent syphilis may be aroused into activity after long periods of time by influences which diminish the *vis conservatrix* of the general system; hence, it is not rare to observe syphilitic affections in people of advanced age who have not been suspected even of syphilitic contamination since early manhood. Mr. Hutchinson believes the degree of severity of the inherited taint is proportioned to the short period which elapsed after the primary infection of the mother. The progeny of the subjects of inherited syphilis are often found with optic neuritis, neuroretinitis, and choroiditis early in life.

It is but natural the subjects of inherited syphilis should exhibit faulty bone formations and faulty development of the teeth; indeed, it would appear from extended observation that the cornea and teeth in particular are especially sensitive to the action of syphilis in those who inherit the disease. I have seen keratitis which presented the appearance of suppuration, and in one instance I saw paracentesis of the cornea practiced for the evacuation of what appeared to be pus in the anterior chamber, but which turned out to be a mass of pale gumma adhering both to the cornea and iris. A course of iodide of potassium wrought the miracle of complete recovery. Under its influence the gumma melted completely away, and the eye not only recovered so far as appearances go, but there was no appreciable impairment of the sight. Many eyes are lost from syphilitic inflammation of the iris extending into the ciliary body, which might have been saved by an early and vigorous constitutional treatment but for the fact of the misapprehension on the part of the medical attendant concerning the origin of the disease.

Prof. Noyes, of New York, is the author of the chapter on Syphilitic Diseases of the Eye in the celebrated work of Prof. Keyes; I therefore find it difficult to obtain any val-

uable information concerning the character and frequency of local lesions in the eye from the observations of this great teacher.

The late Prof. Bumstead, whose Clinical Treatise on Venereal Diseases won him so much fame, was himself an experienced ophthalmic surgeon. He directs attention to the fact that the absence of severe pain and photophobia in syphilitic iritis offers valuable evidence in support of the suspicion of its syphilitic origin. The history of the case is seldom of value, and there are many persons in whom no cutaneous eruption or other sign of syphilitic disease may be discovered, and yet tubercular elevations of a brownish pink tint, sometimes light gray and sometimes cream colored, appear in the substance of the iris or upon its surface, the eye being but slightly sensitive to light and often not at all painfully affected. A few doses of iodide of potassium serve not only to dissipate the gumma in the iris, but to bring out the characteristic cutaneous eruption. The stimulating effect of the iodide of potassium on the skin of syphilitic subjects has been often observed, and may often be employed to clear up the obscure symptoms and make clear the diagnosis.

Mr. Swanzy, of Dublin, and Mr. Hutchinson, of London, have both reported cases of retinitis pigmentosa in the subjects of inherited syphilis. Prof. McNamara concludes this to be a peculiar form of pigmentary degeneration of the retina in which the spots, although beginning in the periphery and accompanied by commencing choroidal changes, do not follow the vessels of the retina. Prof. Gradle says, in an article in the supplement of the Reference Hand-book of Medicine, page 300, that "accompanying late syphilis the retina is involved, beginning in the periphery and extending gradually toward the center of the field, resembling retinitis pigmentosa in appearance, yet the etiological data we possess regarding the origin of retinitis pigmentosa as consanguinity of parents in one fourth to one third of the cases." This, of

course, in nowise impairs the laws of hereditary transmission, and it is by no means established that families having retinitis pigmentosa, although intermarrying with each other, were not themselves or their parents the subjects of syphilis.

Sydenham, about 1670, in his celebrated "History and Cure of the French Pox," says the disease first came to Europe from the West Indies in the year 1493, and that it was already at the time of his writing languishing daily and the phenomena growing milder. He considers that whereas it was very malignant when first introduced into Europe, two hundred years dissipated its malignancy so completely that reason and experience dictated the disease might be cured by any sort of purge given often and for a long while. In another place he says mercurial salivation will generally do the business of cure, and on page 257 he says: "I think no instances can be produced where this disease was eradicated in any other way than by salivation with mercury, whatever some learned and unlearned men say of the cure of it by other means."

The incredulous student, reading the history of the treatment of syphilis through the publications of the great teachers in medicine, from Sydenham to Keyes, naturally wonders why, if mercury or any thing else suffices for the cure, we have any such disease as hereditary syphilis.

Mr. Jonathan Hutchinson considers the distinction to be drawn in the character of the teeth and bones of those who inherited syphilis from the parents long subjected to mercurial treatment and those who inherited it from parents who acquired the disease but a short time before birth of the subject. Upon sound pathologic researches rational systems of therapeusis may alone be established.

Neither Mr. Gascoyne, who reported a large number of cases of iritis successfully treated by the local use of atropine alone, nor Prof. Henry W. Williams, who employed no mercury in the treatment of his sixty-four cases of iritis, have

been any more successful in their exclusive methods of treatment than Sydenham with his mercurial ptyalism, and neither of them has now any imitators.

Materia medica has so far yielded no specific antidote to syphilis, the local phenomena of which yield to a great variety of medication in a very prompt and satisfactory manner. To say that mercury cures syphilis is just as absurd and untrue as to say that all manifestations of syphilis can be cured without mercury.

Inflammations of the iris without accompanying lymphatic obstructions not only require no mercurial treatment, but yield uniformly, in the painless cases, to the action of the iodides, while those cases accompanied by severe pain are promptly relieved by the alternating or occasional use of salicylates and iodides.

It is notoriously true that very emaciated subjects rarely have iritis, yet the ulcerative inflammations of the cornea and conjunctiva of syphilitic origin occur almost exclusively in emaciated subjects. And, paradoxical as it may seem, my own experience leads me to believe that syphilitic emaciation is seldom overcome without at least the occasional use of mercury.

I think a combination of mercury with sulphate of quinine in doses of $\frac{1}{12}$ or $\frac{1}{16}$ of a grain of quinine with $\frac{1}{60}$ grain of bichloride of mercury every three or four hours for a child under eight years of age, with a careful exclusion of all indigestible ferments, such as cooked fruits, syrups, confectionery, and pastry, with judicious bathing, outdoor exercise, and regular administration of nutriment in definite quantities, such, for example, as an ounce of beef tea, or two ounces of prepared beef peptonoids, or malted milk, with each dose of the medicine yields wonderful results in apparently hopeless cases.

Now, as to local treatment of syphilitic diseases of the eye two great principles must be constantly borne in mind.

In all forms of iritis solution of the sulphate of atropine or the hydrobromate of homatropine should be instilled every two or three hours to thoroughly dilate and maintain constant dilatation of the pupil. This is absolutely essential to the ultimate recovery of the eye, no matter what constitutional agencies may be employed to dissipate the general infection upon which the local disease of the eye depends. In cases of abrasion or ulceration of the cornea or conjunctiva some sort of mild antiseptic should be frequently applied to prevent all local infection of the abraded service, for it is well known that even syphilitic ulcers may afford a good ground for the colonization and growth of those micro-organisms which beget suppurative processes.

The best applications are an ointment of the yellow oxide of mercury carefully prepared or an ointment of boric acid. Great care is necessary in the preparation of the yellow oxide of mercury, as it is liable to contain caustic lime, potassium, sodium, or ammonium as foreign ingredients.

The officinal petrolatum is a better excipient for an ointment than vaseline, cosmoline, or any of the other preparations of petroleum.

If this is not at hand, a combination of glycerine and starch, known as glycamil, should be used. Lanoline is sure to irritate the eye, and should never be employed in affections of this organ.

DISCUSSION.

Dr. S. G. Dabney, Louisville: I consider the statement the author quotes from Hutchinson to be wisely placed, iritis in infants being often thus complicated. The fact that the iris is sometimes glued down to the lens must not be forgotten. I recall the case of a patient I saw not long ago who evidently had inherited syphilis, and had iritis in which the iris was glued to the lens behind it. As has been said, iritis at any age needs active treatment.

In regard to keratitis, it is one of the most common forms of syphilitic manifestions of the eye, an inherited form of the dis-

ease. The treatment is usually unsatisfactory as regards time. It takes a very long time usually to cure these cases, do what you will. Not only iodide of potassium but tonics are generally needed, and hot applications as well.

I believe I understood the essayist to say that he regarded retinitis pigmentosa as the product of syphilis, or at least he quoted authorities as saying such. [Here Dr. Reynolds read extracts from his paper giving the views of different authorities on retinitis pigmentosa.]

Dr. Dabney (resuming): The view that retinitis pigmentosa is transmitted syphilis from parents or remote ancestry is not generally held. That it is a hereditary disease, whatever be the cause, will not be denied. A gentleman, about fifty-four years of age, came to me giving a remarkable history of retinitis pigmentosa with the classical symptoms—night blindness, telescope vision, the patient unable to see around him. The disease had been transmitted from generation to generation, the first case dating back to a period before the Revolutionary War. Anti-syphilitic treatment seems to be of no avail. It is an incurable disease in spite of all measures that may be instituted as a rule.

Dr. J. M. Ray, Louisville: What the author said with reference to syphilitic diseases of the eye, both the result of acquired and inherited syphilis, is most interesting. It seems to me we can draw a distinct line between eye diseases the result of inherited syphilis and those the result of acquired syphilis. We may safely say that the inflammatory diseases of the iris and a few diseases of the retina, ciliary body, and choroid are about the only forms of eye disease that we get as a result of acquired syphilis. In inherited syphilis we find not only the optic nerve and retina involved, but a most interesting condition of the cornea, occurring most frequently in children under or about the age of puberty, but sometimes seen later in life.

I am in accord with the essayist as to the efficacy of iodide of potassium in the treatment of these cases. I have certainly seen syphilitic diseases of the eye and gumma about the iris and ciliary body disappear rapidly under the internal administration of this remedy combined with some mydriatic. At the same time I have seen a patient suffering with syphilitic iritis in one eye accompanied by gumma, who, under the influence of the iodide, showed a gradual diminution of the inflammation in the inflamed eye, but at the same time developed a similar condition

in the other eye. If iodide of potassium is really an antidote for the syphilitic poison, it would seem to me impossible for iritis to develop in the other eye. I usually combine with the iodide some mercury, and after I get rid of the acute inflammatory symptoms I advise the patient to take mercury for some weeks or months afterward. While the iodide controls the local symptoms, to have any effect on the syphilitic poison we are forced to resort to the use of mercury internally.

DR. WILLIAM CHEATHAM, Louisville: I recall a peculiar case of inherited syphilis. A patient, about thirteen years of age, came to me with a perfect interstitial keratitis and iritis, and I told the patient's physician that I thought a course of anti-syphilitic treatment was indicated, that the patient had probably inherited syphilis. He said that such a thing was not possible. I have since treated the case as being one dependent upon syphilis, and the patient has gotten along nicely. While treating the case I managed to obtain a history something like this: The mother one day had a severe headache when she was nursing this boy, and a negro woman offered to nurse the child for her; shortly after which a sore was noticed on the nipple. The negro woman had a sore on her lip, and in a few days the mother of the child was inoculated, and she in turn inoculated the father. Here was a case of acquired syphilis, yet as perfect a case of interstitial keratitis as one could wish to see. We can not always make a diagnosis of inherited syphilis in these cases. I treated the patient with iodide of potassium and mercury combined.

DR. HARRY J. COWAN, Danville: In reference to the congenital occurrence of retinitis pigmentosa, I wish to say that it is generally conceded that deaf-mutism occurs from consanguinity of marriage and in particular families. At the institution for deaf mutes in Danville there are many children belonging to the same family, and as there are only about two hundred children there at one time, and as I have seen six cases of retinitis pigmentosa within six years within that institution, it seems to me to lend color to the fact noted many times before, that retinitis pigmentosa occurs more frequently in deaf mutes than in any other class, and it certainly is a fact that deaf-mutism is hereditary.

DR. DUDLEY S. REYNOLDS, Louisville: I shall not have very much to say in closing except this, that Galezowski, of Paris, in 1863, I believe, in a clinical memoir on the diseases of the optic papilla and retina, reported quite a number of cases of retinitis

pigmentosa in which, by the long-continued use of the bichloride of mercury, the entire arrest of the progress of the disease had been witnessed, and in some cases an abatement of the inflammatory action in those circumscribed spots of the retina already involved when treatment was begun. In other words, that where the beginning focus of inflammation was observed in the retina it ceased at this point, leaving a small atrophic spot with a distinctly defined, irregular cobweb encircling it of pigmented matter, and it presented a well-marked form resembling a bone cell, which is characteristic of the pigmented condition of the retina when allowed to go on unrestrained. I saw a number of Galezowski's cases during my first visit to him which had improved under this treatment, and when I saw them at my second visit I was stimulated by the treatment to give it a trial. I have at least four cases that have been improved by the treatment, and more than half a dozen others in which the disease has not advanced perceptibly since treatment was begun. I do not believe myself any possible agency could cure the disease outright, as there is great tendency to recurrence, but while the patients have been under treatment the disease has not advanced.

As to the statement of Dr. Ray in reference to a distinction between inherited and acquired syphilitic diseases of the eye, I must dissent from the view that the iris, ciliary body, and choroid alone are affected in acquired syphilis. I would like to say I have seen mucous patches about the conjunctiva, the lining of the lid, and on the surface of the cornea. I have likewise seen syphilitic ulcerations in these structures and in the substance of the lid, destroying the cartilage, skin, conjunctiva, and intervening structures. I recall a case at this time in which a gummatous formation developed, and resulted in ulceration which notched the upper lid. Retinitis and optic neuritis are common occurrences in acquired syphilis, and the apoplectic form of retinitis seen in syphilitic subjects is not seen in acquired syphilis. Optic neuritis is a common thing in acquired syphilis, following in the wake of a neuritis, leading to secondary or tertiary phenomena, or being in fact one of the earliest manifestations of the tertiary period of syphilitic invasion.

Dr. Cowan's remarks are of unusual interest and deserve special notice from the fact that he thinks deaf-mutism in general is an hereditary condition. I would like to remind him and those who are engaged in aural practice that occasionally we find a

child who, from some accidental affection of the pharynx, or some accidental plugging of the external auditory canal with foreign matter, is prone to deaf-mutism. A discomfort is created in the ear of children who learn to talk. There is a case in Georgetown which may be known to Dr. Cowan. A certain gentleman's daughter had learned to talk, and having an affection of the pharynx suffered a great deal from increased deafness. She gradually lost the power of speech, so much so that she could only utter indistinct, inharmonious, disagreeable guttural sounds. She could not utter a word of any thing bearing the semblance of an attempt at vocal expression. This child, under treatment, recovered, not completely, but sufficiently to hear loud conversation at a distance of three feet. She has regained the power of speech, is going to school and acquiring her education at Georgetown. I mention this case to illustrate a large class of cases familiar to all aural surgeons.

DR. COWAN: I do not call that class deaf-mutism.

DR. REYNOLDS: Dr. Cowan says there are about two hundred children in the institution for deaf mutes in Danville, and that there is on an average one case of retinitis pigmentosa to the two hundred children assembled there is not in anywise remarkable to my mind. Why? Because I take it for granted that the children in that institution, as in other eleemosynary institutions, are generally the progeny of parents in ordinary circumstances. I think about one in two hundred is about a fair average in this class of persons to exhibit retinitis secondary to pigmentation, as has been referred to by Hutchinson and Galezowski, and Gradle, of Chicago. The cases differ in the manner of advancement and the extent and character of pigmentation, but they are nevertheless cases of pigmentary degeneration of the retina, which advance in circumscribed areas and not in the whole field at once.

DR. J. M. RAY: In reference to syphilitic diseases of the eye, inherited and acquired, I did not consider diseases of the eyelid, in which gummæ and ulcerations are quite common. I referred to diseases of the eyeball.

As to inflammation of the optic nerve I *have never in my experience seen a single case of optic neuritis attributable to syphilis.* I have seen iritis secondary to gumma, but not optic neuritis as a result of syphilis.

FISTULA IN ANO.

By J. N. Baughman, M. D.
Flat Lick, Ky.

Mr. Allingham says there are more cases of fistula than of hemorrhoids. Dr. Mathews says there are more hemorrhoids than fistulæ, but states that the greatest number by far of all rectal troubles belong to one of the two.

In a practice of twenty-one years I have met with but very few cases of fistula in ano, while I have had cases of piles of almost daily occurrence; but for the last few years I have had many more cases of fistula in proportion to the time than I formerly had. Now, why is this? I am of the firm belief that it was ignorance of the exact nature of many of my rectal cases. When I first began to practice medicine I thought I knew a great deal about physic, and it took quite a while for this idea to be eradicated, and I am now convinced that most country physicians are too much in the habit of taking the verbal statements of their patients when they have any rectal trouble, and at once say "piles," and prescribe some ointment for them, and never even make an ocular examination, much less use a speculum to examine carefully into the mucous folds of the rectum to find what lies hidden beyond where the finger or eye can penetrate. I think this was the main reason why my former rectal cases were all hemorrhoids. A patient would approach me and say, "Doctor, I have piles; what is good for them?" I would look wise, ask a few questions, and give some stramonium ointment and do her or him no good. The chances are that my patient no more had a case of piles than the Goddess of Liberty on the

dome of the National Capitol, and if I had only made a careful ocular examination I would have been enabled to know it; but it was not convenient, or my patient did not like for an examination to be made, and the case would go on from bad to worse through the carelessness of the physician. Was this right? Was it honest? It was not.

I am speaking pretty plainly of myself, but I doubt not but that the shoe is fitting pretty closely the foot of nearly every M. D. in this audience. This is why so many rectal troubles remain uncured. If we would use as much care and patience with the milk of human kindness in the examination of this class of cases, we would effect more cures and be called blessed much oftener than we are.

I believe I am safe in the assertion that in at least one half of the cases of fistula I have met with the patient was also suffering from piles, and it is invariably the case that the piles is the only trouble they seem to believe they have, and in fact, with the common people, all the rectal troubles known to the physician are considered as piles.

It is easy enough to diagnose a case of piles, but it is often far different with fistula, and especially with the internal, blind variety, and it is often a very difficult task to discover the various ramifications the tract of a fistula may have, and this is of the utmost importance when it comes to treatment, for if any one of these tracts or any part of the sinus is left, it will result in a failure as regards the cure, and is often very damaging to the reputation of the surgeon.

It is easy enough to diagnose a complete external fistula, still it is sometimes quite a difficult task to find the internal opening even in this class, and in the internal, blind variety of fistula, if we are not very careful and painstaking in our examination we are almost sure to let it escape our observation. If we have once discovered the opening into the gut, we should mark well its exact location, and I think the time to operate is when we have succeeded in introducing a probe

or grooved director into the fistulous tract, for we might find it a difficult task to introduce it successfully the second time.

In complete fistula it is a good plan to introduce a speculum, and then we may inject some colored fluid into the external opening and observe where it comes out in the gut, or what would be perhaps better would be to introduce the finger into the rectum and then gently put the probe into the fistula and let it quietly feel its way until we felt it press out through the mucous membrane. I believe it would be a very good rule when we have a case of this kind to always be ready to operate at the time we make the examination, and I must say that I do not believe in any treatment but the knife, and in saying this I want to state my admiration for the fistulatome which Dr. Mathews speaks so highly of in his excellent work on Diseases of the Rectum. Now, I do not wish to be understood as saying no case of fistula can be cured without undergoing the cutting operation, for by the use of a perfect system of hygiene, together with thorough cleanliness, we will often be enabled to cure fistula by the use of irritating injections, but we will always find these a slow and uncertain factor, which will never be substituted for the surer and more heroic treatment, and will only prevail in those patients who are unwilling to listen to the good judgment of the surgeon, simply because they are afraid of the pain produced by the knife. It would be best in such cases to simply decline to further treat the case, still this is sometimes very hard to do for various reasons.

There is no doubt but fistula in ano will sometimes get well without any treatment, as is clearly shown by the following case:

In September, 1887, this patient began to suffer with a throbbing pain in the region of the rectum. He had not received any injury or hurt of any kind in this region, and was unable to account for the rectal abscess that was forming. He suffered from retention of urine, and the bladder

had to be emptied with the catheter for several days. The abscess continued to go on from bad to worse, the patient suffering the most agonizing pain, with a temperature which went as high as 103° F. with a quick, bounding pulse and some delirium, and an almost erysipelatous condition of the entire perineal region. The attending physician failed to open it and give free exit to the pent-up pus, which had burrowed badly. Finally the abscess opened of its own accord, and then one of the physicians opened it up freely and let out a good deal of that most offensive pus which only a rectal abscess can furnish. From this time on the case had the most perfect treatment, but it was some four months before it healed, and then, as is the rule in those cases, it left a fistula, the external opening of which was about one and one half inches in front of the anus. He could not locate the internal opening, as the writer of this article was the patient and of course was unable to examine within the rectum, but he knows it was a complete fistula, for gas would at times pass entirely through the tract for some two years after it first appeared, and then it ceased, but the external opening continued to suppurate until September, 1892, when it ceased, since which time it has given no trouble or any signs of fistula whatever, and there has been no rectal trouble since. There was no treatment of any kind, and the patient was constantly on horseback practicing his profession. This was a spontaneous cure, but I consider it as one of the rarities of surgery.

The treatment of fistula which if properly carried out will produce the most good is undoubtedly the preventive, for I think there never was a case of fistula in ano that was not preceded by an abscess of some kind, and if we would be careful to open up the abscess as soon as pus is discovered and give it free vent, and then keep it packed with iodoform gauze so it would heal from the bottom, we would very rarely have it result in fistula. But while we are giving the local parts appropriate treatment we should not neglect the con-

stitutional treatment that is so often necessary in those cases, for while we sometimes find rectal abscess in the strong and robust we more often find it in the consumptive and scrofulous diathesis, and so long as the general health is impaired we can not expect the local lesion to be furnished with healthy granulations which are so essential to a successful issue. It is also in this class of cases we can bring into active help for our patients our psychological knowledge, for all rectal and urinary troubles play sad havoc in their debilitating effect upon the mind.

I would here state that I would not hesitate to operate on a fistula in a consumptive for fear of aggravating the lung trouble, but only from the fear that in some stages the system is so run down and the blood in such a poor state as to make it impossible to obtain healthy granulations in the cut surface.

I am of the opinion from what I have read and studied in regard to the fistulatome (never having used it) that in all the simpler forms of fistula it will take precedence over the bolder cutting operation with the knife (for I look upon it as only being a simpler form of doing the cutting operation), for it will stop the cutting through the sphincter muscle, which is necessarily done in the old method, and thereby prevent any liability of destroying the usefulness of the sphincter muscle and producing paralysis and resulting in non-retention of feces, which would be the most deplorable thing imaginable. It also does the work in a far less painful manner, and, in fact, the patient need not be aware of an operation being performed until after it is over; and again, he need not be compelled to take his bed as he would have to do if the entire sphincter was cut through. This little instrument can do all the cutting that can be necessary, that is, where it can reach the fistulous tract, and it would be best to turn the instrument so as to cut the walls of the sinus in two or three places so you may set up an amount of inflammation suffi-

cient to produce a granulating surface along the entire canal, and as should be done in any operation for fistula; the granulations should be kept forming from the bottom of the wound if we expect to make it a success.

There is a great objection with most persons to the use of iodoform on account of its odor, and from this fact I would be inclined to use as a dressing for the granulating surface Marchand's peroxide of hydrogen, which is the most cleanly and at the same time the most perfect disinfectant we have. Almost perfect cleanliness, and I may add sweetness (surgically considered), even in a rectal abscess may be obtained by the use of this remedy, and it is perfectly harmless, and if kept in a cool place and well corked and wrapped can be kept pure for many months.

Of course we should be very careful and have every thing connected with the operation, patient, instruments, and hands, scrupulously clean, which is better than any antiseptic at our command.

I have not mentioned the use of the ligature for the very reason that I do not think it should be used in preference to the cutting operation.

As a parting thought, let me admonish you to always be sure you have ferreted out every ramification of your fistula and given it as careful treatment as the principal one, if you expect your operation to be crowned with success.

DISCUSSION.

Dr. T. B. Greenley, Orell: I would like to emphasize the author's remarks in regard to operating on phthisical cases. Unfortunately I have operated on two, and I never could see any effort on the part of nature or any thing I could do toward reparation.

Dr. J. G. Carpenter, Stanford: If there is any man who should know how to treat rectal diseases it is the country doctor. Prescribe for no patient who complains of rectal irritation with-

out a digital examination and ocular inspection. If there is a specialty that belongs to the general practitioner, it is that of rectal surgery. If there is a simple specialty, it is that of diseases of the rectum.

As to asepsis, we can have it in surgery of the rectum. If we purge the patient and diet him as he should be for a laparotomy, we can have primary union. I did that operation three weeks ago, and the sutures were ready to come out on the fifth day. In all cases of hemorrhoids and fistula divulsion of the sphincter ani should be practiced to put the rectum at rest and to allay vesical irritation.

As to operation for fistula, only two months ago a patient came to me supposing he had incipient phthisis, hemorrhages from the lungs, with an enormous fistula and exudation into the ischio-rectal fossa. Three doctors pronounced it disease of the lungs, but the case turned out to be one of hypertrophic rhinitis, with enlargement of the third tonsil. By cauterizing the turbinated body and third tonsil the hemorrhages ceased. I operated on the fistula, and the operation has been a success. The enormous exudation had to heal by granulation, and the patient is now practically well.

As to the methods of operating for fistula, we can curette the fistulous tract by friction and overdistension, rubbing it with cotton with the finger or cotton upon a probe, swabbing the parts with a saturated solution of nitrate of silver or with carbolic acid. By so doing many of them will recover, as I have seen. Then we can curette the fistulous tract in some cases, making fresh surfaces, and uniting the lips with sutures, but I believe the best treatment of all is to lay the fistula open and use a Goodell, having the sphincter stretched, and, following this with the use of vaseline, the patient will get well in a few days. If the practitioner understands in rectal surgery that each individual case is a law unto itself, and the remedies suited to that case must be selected with with wise discrimination, he will get good results.

DR. F. J. YAGER, Campbellsburg: I am pleased with the independence of Dr. Carpenter, but I have been practicing medicine for forty six years, and I do not pretend to know all about fistula in ano. I do not pretend to know all about the idiosyncrasies that our patients seem to have. I do not profess to cure every

case that I get hold of, yet I try very hard to do so. I am very glad we have specialists to whom we can refer these very intractable and obstinate cases, to men who know more about how to deal with them than we do. With all due respect to the country doctors (and I am one of them), without lowering our capacity as country physicians, we do not have the same opinions in regard to the treatment of these cases, and it is well sometimes for us to send patients to specialists when we are in doubt as to what to do.

DR. W. O. ROBERTS, Louisville: I congratulate the members of the Society who have had the pleasure of hearing this excellent paper. There are some points in it, however, upon which I have to differ with the author, but most of them, I am glad to say, I heartily indorse.

There is nothing more important than a thorough examination in all cases of rectal trouble. I say a thorough examination. I mean by that not a superficial one. When we find a man with fistula or with a pile, we should not be satisfied with that, but we should make a further investigation and see whether or not these troubles are not due to troubles higher up in the bowel. We very frequently meet with cases of hemorrhoids associated with stricture, malignant disease, or cancer of the bowel. Of course it would be perfect folly to attempt any treatment of the hemorrhoidal trouble so long as the others exist.

As to the examination, I think the best position in which to place the patient is on the side on which the fistula exists. This is especially important in the examination. In nearly all cases there is an internal opening, and I believe the cases that get well spontaneously or by curetting the fistulous track are cases in which there is no internal opening. I have never seen a case where recovery took place without operation when there was an internal opening.

As regards searching for the opening, I think one of the great reasons why the internal opening is not often found is because the search is made too high up. I believe in ninety-nine per cent of the cases of fistula in ano the internal opening is within the verge of the anus. A probe is the best thing for finding the opening. I have never succeeded with injections. In searching for the opening we must be exceedingly careful and patient. Always have the finger of the left hand in the rectum, and change the curve on the probe every now and then, and finally, if there is an opening, it will slip into it.

As to the treatment, first of the abscess: If there is no internal opening, I believe if we lay the abscess open thoroughly, make a good free incision, clean out the abscess thoroughly, and then pack it with iodoform gauze, it will heal up from the bottom, and the patient will get well without any fistula. If there is an internal opening, I doubt whether this will take place. The treatment *par excellence* is the knife, and the sooner we use it the better. If you find an internal opening, operate at once. I have never yet had the misfortune to meet with a case in my own experience of paralysis of the sphincter muscle from simple division of it in the treatment of fistula. I know it does occur, and that when it occurs it greatly injures the muscle. Where there are a number of external openings it is safer to lay them open. I have not derived any benefit from the use of injections. I use the peroxide of hydrogen frequently in cases of abscess where there is no internal opening, but I prefer very much that which is made by the Oakland Manufacturing Company. It contains much less acid and does not give the discomfort that the peroxide of hydrogen made by Marchand does.

Dr. Samuel E. Woody, Louisville: I wish to combat one idea indorsed by Dr. Carpenter, and that is the necessity of asepsis in operations about the rectum. It is unnecessary, and it is not feasible. I do not believe it is possible to get asepsis in rectal diseases, when there are constantly millions of the bacilli coli communis, besides other bacilli present, which we find in the alimentary canal. It is not practicable, and not necessary. Rectal tissue heals kindly. The blood and nerve supply is extremely abundant. There is no branch in surgery so easy for the general practitioner as rectal surgery. Eliminate the great bugbear of the general practitioner, the microbe, and he has the courage then to undertake to perform rectal operations. The general practitioner has a right in not opening the abdomen where the admission of germs or their exclusion means death or life to the patient; but in rectal cases, where we have eliminated the fear of septic infection, we are not at all afraid of doing the patient any injury. Where we do not have the complex preparations to attend to and the numerous applications necessary to do complete aseptic work, the general practitioner should have no hesitancy in undertaking rectal surgery.

Dr. B. F. Herndon, Barbourville: Speaking of a free incision for the relief of fistula in ano, I would ask if the incision is

made from the opening involving the sphincter muscle proper. If it is a fact, why not commence the incision from the point of the internal opening, so to speak, and instead of letting it come out at the sphincter muscle, let it come out just a little above it. I think the same good results would follow, and we would not have incontinence.

DR. BAUGHMAN (closing the discussion): I thank the gentlemen for the compliments they have passed on my paper. One thing I want to impress is the idea that the originating cause of fistula is in an abscess of some kind, strumous or cold abscess, and that if we will open these abscesses thoroughly, just as soon as we have discovered pus and established free drainage so as to set up healthy granulation from the bottom, it is seldom we will have a fistula in ano as a result.

I did not give the subject as much space as I perhaps should have done. I went over only the most important points.

In regard to what Dr. Woody said about asepsis, I do believe that even in a rectal abscess or fistula in ano we can get perfect cleanliness, perfect asepsis. We can give the patient a purgative and entirely empty the alimentary canal, and we can then by the use of hot water applications get it in a perfectly clean aseptic condition. Then if we lock up the bowels and perform our operation we have no suppuration, and within four or five days we have union by first intention. The patient gets well without any foreign bodies having passed over the wound.

THE LARVA (ECHINOCOCCUS) OF TÆNIA ECHINOCOCCUS; REPORT OF A CASE.

By Joseph M. Mathews, M. D.
Louisville, Ky.

In dealing with this subject it is well to call your attention to the fact that the pork tapeworm (*Cysticercus cellulosa*) infests the body of man both in its mature form, as the developed tapeworm, and in the immature form, as the cysticercus, but their presence is a rarity. Karenski found them but nine times in eight thousand five hundred autopsies. Cysticerci select by preference the psoas and iliac muscles, and the diaphragm; but they may also infest the general muscular system in man. They are sometimes carried by the lymph or blood currents to the viscera, as the brain, lungs, kidney, liver. They have also been seen in the eye, though very rarely.

The tænia echinococcus, dog tapeworm, hydatid or bladder worm, is the smallest of all tapeworms, measuring but one fourth of an inch in length. It does not live in a mature state in man, but does in the dog and some other animals. They exist in such numbers that they have been mistaken in the intestine of the dog for intestinal villi.

The larva (echinococcus) of the tænia infests man, and is different from all other tapeworms because endowed with the property of self-multiplication. The liver is most commonly infested, some say in sixty-nine per cent of all cases. It is presumed that the embryo is carried by the portal vein. Having a habitat the echinococcos develops the hydatid tumor, which may be a single cyst, or proliferates from its

inner walls multiple daughter cysts, or from them granddaughter cysts to the number of many hundreds. The echinococcus is exceedingly rare in this country. Osler reports three cases out of eight hundred autopsies, and says, after searching all literature obtainable on the subject, he could find but sixty-one cases reported in the whole of North America.

Mrs. C., aged fifty-five years, was referred to me by my friend, Dr. J. A. Larrabee, to be treated for some rectal or colon irritation. The patient seemed to put a good deal of stress upon the idea that her rectum was the source of much of her trouble. An examination was made with a long speculum, and at about six or eight inches from the anal orifice a decided inflammatory condition of the mucous membrane could be seen. No perceptible infiltration could be detected, but Dr. Larrabee and myself found a slight constriction at this point that possibly might eventuate in malignancy. She gave the following history: In the year 1889 she was taken sick with what her physician called intercostal neuralgia and malaria, together with nervous prostration. She complained of intense pain, beginning over the sigmoid flexure or descending colon and radiating up to and under the ribs. She described a sinking or giving way feeling that was death-like to her. She was often bathed in a cold sweat, although it was in the summer season that she was attacked. The whole left side was blistered, and afterward applications of iodine, liniments, etc., were applied for weeks, together with a thorough application of electricity each day by a competent physician, but the pain was not abated. It had become localized over the colon, and was intense. She was confined to bed for about six months. After this the physician was discharged and another employed, who pronounced her trouble chronic peritonitis. He had adjusted to her abdomen a rubber jacket which gave great relief when it was on, but after its removal pain and soreness followed. About

this time a lump or tumor was perceptible over site of flexure about half the size of a turkey egg. She was in the constant habit of pressing up the left side for relief, and wore tight linen stays. During all this time, for fully one year, she was confined to bed and room. For the next year she continued to suffer pain in the inguinal region and back of the neck. At this time she was at a private sanitarium, and while there she was examined by a lady physician, who told her that she had a severe form of rectal stricture and required an immediate operation. She returned to Louisville, when she consulted Prof. Larrabee, who called me in consultation. As has been stated, an inflammatory condition was found in the upper rectum only. We agreed to high injections, first of nitrate of silver, and afterward I injected the colon every few days with different agents, as nitrate silver, boric acid, fluid hydrastis, etc.; very little internal medicine was given. After a few months' treatment she informed me that she was passing some "strange things," according to her estimate some twenty or more at each action. I made an examination and found that they consisted of a dense impermeable elastic capsule, which when pressed upon would "pop," giving a decided report. When a section was made the capsule would roll up its edges, a point said to be of much diagnostic value.

The echinococcus is said to be enveloped in this capsule. The fluid contained in each of these capsules was clear and limpid, and not mixed with either pus or blood. In number they aggregated between 75 and 100, in size from that of a pea to the size of the thumb. The mother cyst evidently passed, as one was observed much larger than the others. No chemical or microscopical examination was made, but there could be no doubt of a correct diagnosis, which of course was made after the passage of the cysts and not before.

It is no wonder that her case was treated for many affections rather than the correct one, and no blame is to be attached to the different able physicians who had seen and

prescribed for her. It is well known that the symptoms are generally misleading. Echinococcus of the brain simulates typhoid fever, and in the long bones it develops spontaneous fracture rather than a tumor. Madeling maintains that as a rule but one third of the cases are diagnosticated.

It is well established that echinococcus cysts are not amenable to relief by internal medication. Nothing in this way affects them in the least. I am constrained to believe that in the case I report these cysts had their habitation in the colon, and were dislodged by the high injections given the patient. She has improved in general health to a remarkable degree. A few days ago she said to me, "Doctor, I am satisfied that you have saved my life." She is more cheerful, freer of pain, eats well, rests better, and feels that she has taken on a new lease of life.

SYSTEMIC ANESTHESIA FOR EXAMINATION OF THE RECTUM, SIGMOID FLEXURE, AND LOWER COLON.

By W. O. Green, M. D.
Louisville, Ky.

It seems a strange fact that, in the rapid scientific advancement of rectal surgery in recent years, relatively little has appeared in the writings of modern authorities concerning the employment of anesthesia for diagnostic purposes. That the full extent of pathological conditions of the rectum is frequently obscure, and often impossible to determine by the means ordinarily employed before the patient is placed on the table for operation, seems too well established to justify argument. No one, I believe, will deny the great responsibility that duty requires every physician to assume for a most accurate and thorough investigation of each and every case, yet the experience of most close observers will furnish instances in which intelligent practitioners have been willing to proceed blindly into operative measures for trivial conditions when there co-existed a train of obscure symptoms which should have demanded more extensive primary examination. It is true all necessary information may frequently be obtained from subjective symptoms, inspection, and digital and speculum examination; but there are many instances in which the patient may be highly sensitive, the disease located high in the rectum or in the lower portion of the sigmoid flexure, the abdomen may be tense or thickened by extensive deposits of fat, and the surgeon can only verify the existence of tenderness, an inflamed mucous membrane, or the pres-

ence of some insignificant discharge. The employment of an anesthetic under these circumstances will often enable one to pursue the examination with little difficulty, for the location of the disease is frequently placed at easy command and the surgeon may encounter few obstacles in making accurate diagnoses.

I had recently brought to my attention a case in which the symptoms and digital examination furnished sufficient information to make a diagnosis of ulceration with internal hemorrhoids. On account of the severe pain and spasmodic condition of the anus, resulting from the manipulation, the examination was not continued further. When the patient was placed on the table for operation dilatation of the anus revealed, in addition to the troubles already enumerated, procidentia and a fibrous structure in the pouch of the rectum. Not being prepared for the latter conditions, the surgeon could only deal with the hemorrhoids and ulceration, leaving in reality the principal disease unattended, and, when a second operation was subsequently proposed, the patient and his family absolutely declined it.

At the outset it must be presumed that the surgeon will not undertake this method unless the symptoms and history indicate the possible existence of some serious affection, and it has been established that all other means have proven inadequate or else impracticable. Moreover, unnecessary haste should always be avoided, as it oftentimes happens that careful observation over a longer or shorter period of time will make quite clear symptoms that were at first thoroughly unintelligible or created apprehension for grave organic trouble. Unless the case is manifestly an urgent one it would therefore be well to see the patient several times, and to employ only such means as are practicable before resorting to anesthesia.

The possibilities and entire extent of the usefulness of general anesthesia as a means of diagnosis has not yet been

clearly defined, but it is quite certain that, in the light of our present knowledge, it offers a field for more thorough investigation, and its more frequent employment is palpably a necessity, while its neglect may lead to grave error.

It is scarcely in the scope of this paper to discuss the preparation of the patient, farther than to state that it is always desirable to have the lower bowel emptied of its contents before commencing the examination. This point, I trust, has been sufficiently dwelt upon in my paper upon the "Care of Patients for Surgical Measures in Rectal Diseases." (New Albany Medical Herald, May and June, 1894.)

In the majority of cases chloroform is probably the best agent that can be employed for the examination. It is rapid and more certain in its action than ether and less apt to be followed by the extreme and prolonged nausea which frequently gives rise to violent retching and straining.

In conducting the examination the surgeon should proceed according to the circumstances of the individual case. For the purpose of convenience, however, the cases may be divided into three classes; first, those which require examination of the anus and lower portion of the rectum; second, those in which the disease is supposed to exist about the middle or upper portion of the rectum; and, third, those in which there are symptoms pointing to pathological changes in the sigmoid flexure or the lower portion of the descending colon.

The first class will include those patients who from a sense of extreme delicacy or modesty can not consent to an examination, and those in whom there is marked tenderness or a violent spastic condition of the anus, which would render all manipulation of the parts both intolerably painful to the patient and thoroughly unsatisfactory to the surgeon.

We hear a great deal of false modesty existing among patients who refuse examination when they apply for treatment, but it must be admitted that in most sensitive women diffidence is an innate part of their dispositions, and it should

always be delicately considered as such by the surgeon. This feeling does not prevail wholly among women, but men sometimes declare themselves averse to any such procedures. On one occasion a prominent physician of one of our large western cities, who had suffered several years from a painful rectal trouble, assured me that he had continued to endure the disease because of the great repugnance he had always felt even for an ordinary examination. Likewise, in dispensary practice, I have known patients to run the gamut of rigid examination in almost every department and then harbor distressing and even dangerous diseases rather than submit to rectal examination. I can not, therefore, think it a just commentary to declare this feeling one of false modesty. I believe the judicious surgeon must be constantly awake to a dignified regard for such psychical conditions, as it will sometimes happen that in no other way will he be able either to gain the confidence or spare the diffidence of his patient. With many of these people anesthesia solves the problem, and when it becomes necessary to make a diagnosis, especially in young and nervous unmarried women, the advantages offered by this method, it seems, should at once force themselves upon us.

The tenderness and spasm of the diseased anus or lower rectum may sometimes be overcome by the employment of cocaine, but this agent is not always reliable, and not infrequently it is directly contra-indicated, or it may be that the disease is in such a locality that the proper administration of cocaine would be thoroughly impracticable. A systemic anesthetic may then be employed with signal benefit.

In proceeding with the examination of the first class of patients, unless the disease is situated about the anal orifice, where separating the parts firmly will expose the full extent of the trouble, or there is an atonic condition of the muscles, the sphincters should always be thoroughly dilated.

It is well to bear in mind that when the anus is dilated profound anesthesia is absolutely necessary, for the sphincter

muscles of this portion of the body are probably the last of the entire muscular system to yield to the influence of the agent. The nerve distribution to these muscles is very extensive, and there is maintained an intimate decussation between the cerebro-spinal and sympathetic systems, which are in communication with the centers of distribution for the abdominal and thoracic cavities. Any great amount of manipulation about the rectum and anus must therefore indirectly produce an impression upon the pneumogastric nerve and the organs of its ultimate distribution. Should the anesthesia be only partial, shock to the pelvic centers may be transmitted to the systems higher up and affect respiration and circulation to a degree which may prove distressing in the extreme.

The method of dilatation which seems most satisfactory I have endeavored to describe in an article entitled "A Surgical Method for the Treatment of Internal Hemorrhoids." (American Medico-Surgical Bulletin, March 1, 1894.) Dilatation, I believe, is a matter of so much importance in this form of examination that I shall take the liberty of quoting a few lines, and venture to hope it may not prove unworthy of attention.

The patient is placed in the Sims position on a hard bed, couch, or table, near a window admitting a strong light. The operator "anoints his index fingers with vaseline and introduces them into the anal orifice, carrying the tips up until they impinge upon the upper border of the internal sphincter. By firm, steady, and continuous pressure the fingers are slowly separated in opposite directions. This stretching is repeated at right angles to the first points of manipulation, then in another direction, and so on entirely around, first using two fingers and then four, until the sphincters are thoroughly dilated and perfect relaxation is obtained. When this is properly done the anus is made patulous, and its interior as well as two or three inches of the rectal pouch are brought into view for primary inspection." Should the parts not be

brought sufficiently into view, a speculum may be supplemented, which will cause the entire anus and lower rectum to appear plainly mapped out. By digital exploration the surgeon may then detect the diseased structures of the anus and lower two or three inches of the rectum together with the condition of neighboring organs surrounding the rectum.

The second class of cases, namely, those in which the disease is supposed to exist about the middle or upper portion of the rectum, will require anesthesia either to bring the parts into view or reach the point of disease with the fingers. Likewise the rule for regarding the sensitive and spasmodic condition of the parts as well as the modesty of the patients must be observed here.

Many writers speak most favorably of the systematic employment of bougies without anesthesia in many of these cases, and in some instances when skillfully used fairly accurate diagnoses may be recorded. But for anatomical reasons their accuracy may generally be doubted, and the vast number of perforations that have occurred, even at the hands of experts, should amply justify an uncertain regard for the safety of this method.

The procedure to be recommended should commence with a preliminary dilatation of the anus, and if the disease is found to exist beyond satisfactory reach of the finger or speculum, the surgeon will grasp the wall of the rectum firmly with a long, angular volsella. A second volsella is fixed in the opposite wall and gentle continuous traction instituted. Remembering the movable nature of the upper portion of the rectum in health, it can be readily understood that this will effect an invagination, and, should the meso-rectum be very long or much relaxed, quite a great deal of the bowel may be brought close to the anal orifice. The utmost care and gentleness must always be exercised, for, while this method when judiciously practiced may reveal much valuable information, it is not without danger.

The mesentery is frequently very short or the disease may be of such a nature as to bind the rectum firmly down to the pelvic cavity, when all attempts at invagination will prove quite ineffectual. The surgeon must then look for other means of reaching the diseased portion of the organ.

This brings us at once to the question of introducing the entire hand into the rectum. There seems to be some difference of opinion as to the advisability of this procedure. Simon of Heidelberg, who perhaps first described the method, considered it entirely free from danger, while Allingham adds the limiting clause that a small hand is absolutely the prime requisite for a successful attempt with this maneuver. Kelsey and Weir, of New York, declare that a hand measuring seven and a half inches in most instances can be passed into the rectum easily and with little danger of rupture to the organ or a subsequent permanent incontinence. Kelsey tells us also that a hand "measuring more than nine inches is unfit for the purpose." In a series of experiments practiced on eight dead subjects, Cripps, whose hand measured seven and a half inches, was unable to effect an introduction in two instances; in two cases the rectum was ruptured; while in the remaining four the parts yielded readily and sustained no injury. It is likely, however, that in the living subject, by reason of the almost constant presence of mucus, the natural elasticity and contractility of the rectal walls, and the absence of that flabby relaxation characteristic of dead tissue, the parts are more tolerant to the procedure than in the cadaver.

With the physical advantage of a small hand—measuring six and three quarter inches—I have repeatedly employed the maneuver on the living subject without a single instance of any ill effects following. But not a few cases have been encountered in which such a procedure would have been manifestly impracticable and undesirable. My observation and experience would certainly justify the opinion that in selected cases manual examination of the rectum with a hand

measuring seven and a half inches or less can be practiced with safety. Should the hand exceed this size it will generally be extremely cramped, and the operation will usually be not only unsatisfactory but dangerous, while the limited information that may be obtained is more than counterbalanced by the chance of a complete rupture of the organ.

The form of manipulation to be employed is a semi-rotary movement alternating with limited flexion and extension. The hand should be fully extended and made to take a rounded form by bringing the end of the thumb in contact with the palmar surface of the second joint of the little finger. When the narrowed sigmoid flexure offers obstruction to the onward progress of the hand an advantage may sometimes be gained by slightly withdrawing the hand and extending one or two fingers through the presenting aperture.

In some instances where the hand is small it will be possible to carry the exploration beyond the rectum well into the sigmoid flexure, or even at times into the lower portion of the descending colon. But in the majority of available cases the hand will become engaged at a point opposite the third portion of the sacrum, when, for anatomical reasons, it will be obviously hazardous to employ force to pursue the examination farther.

While the size of the hand is to be regarded with vital importance, the imminent necessity of gentleness and a consideration for all pathological changes in the coats of the bowel must under no circumstances be forgotten. The small hand forcibly or awkwardly used becomes quite as formidable as the large one, while certain structural changes not only contra-indicate manual examination, but frequently render some of the simpler methods exceedingly dangerous.

It is important to remember that extensive irrigation of the bowel following this procedure may cause undue dilatation and coincident rupture. The plan of treatment to follow

should therefore consist of small doses of opium, together with rest in bed for at least two or three days, while purgation is strictly withheld for the same length of time.

Lastly, when the diseased condition exists in the sigmoid flexure or lower portion of the descending colon and the methods already mentioned are obviously of no value, where the abdominal muscles are too tense, or the walls too thick or tender to reveal adequate information through palpation, this, the third class of cases, will demand exploratory laparotomy. For this procedure, on account of the limited space the surgeon is compelled to work in and the impossibility of finding the bowel when it runs an abnormal course, or the difficulty of identifying it in the lumbar region, it is better to make the incision in the inguinal region.

This may generally be made two and a half inches in length and an inch and a half to the inner side of the anterior superior spinous process of the ilium. It intersects at right angles an imaginary line drawn from this process to the umbilicus, which line divides it into two equal parts. When the abdomen is opened search is instituted for the diseased point, and, should an operation be deemed essential, necessary measures looking to the cure or amelioration of the disease can be at once instituted. Otherwise the bowel should be returned to the abdominal cavity and the incision closed in accordance with the usual method of dealing with these wounds. Should there be no evidence pointing to the approximate location of the disease, the incision may be made in the median line of the abdomen.

In conclusion permit me to say that if the surgeon has been careful to elicit the symptoms, inspect the parts, and make a speculum and digital examination, in a large proportion of cases he may be led to suspect certain diseases, which he can either verify or disprove by the use of an anesthetic. He can make such preparation as he thinks the supposed ailment justifies, and at the same time explain the situation

fully to the patient. The patient's consent must then be obtained for such measures as the surgeon may deem expedient, which enables him freely to exercise his skill and at the same time take advantage of a single anesthesia for examination and operation.

In a certain other proportion of cases the patient may decline treatment, the condition of the parts may not justify surgical measures, or the disease prove inoperable, when the surgeon can employ the anesthesia only for diagnostic purposes.

In either instance the patient has had a prior understanding of the purpose and possible outcome of the procedure, and must be prepared for the results that circumstances require. This precaution is always necessary, as it must serve to protect both the physician and his patient from any subsequent misunderstanding.

LEPRA, WITH REPORT OF CASE.

By C. B. Schoolfield, M. D.
Dayton, Ky.

To write a paper on any subject is not an easy task, but to attempt a thesis on an unfamiliar one is certainly an onerous duty.

On the 16th of March, of this year, 1894, I received a letter from Dr. C. F. Barbour, of Brooklyn, N. Y., asking me to look after a case of leprosy that had been under his care last September. The brother-in-law of the patient had moved to Dayton, Ky., last November, bringing the patient with him, and I had been called to see the wife, but had never seen the boy mentioned by the doctor until after receiving his letter. I wrote immediately to Dr. J. N. McCormack, our worthy secretary of the State Board of Health, reporting the case and asking information as to the laws of our State in reference to leprosy. He gave me such information as he possessed, stating that it was the first case ever reported in the State, and asking me to write a paper on the subject for the present meeting, which explains the present affliction, for which you must hold him accountable.

The patient was under my care just three days. The newspapers got wind of it and created such a sensation that I was compelled to send him away on short notice. The following is the history of the case as given by Dr. C. F. Barbour, of Brooklyn, N. Y.:

"The boy, H. A., came under my observation in September, 1893. He was accompanied by his father and sister, both healthy-appearing persons. The patient has a mother

living, and three other children are alive and all enjoying good health. One uncle, upon which side I am unable to say, has and is a sufferer from chronic eczema. There is general denial of any sickness having existed in the family so far back as it is possible to trace.

"The parents of the boy are natives of the West Indies, but have lived in Key West, Florida, the major part of their lives. The patient is fourteen years of age, and mentally bright. He is taller than most boys of that age. Four years ago, from September, 1893, there was an epidemic of measles in Key West, and this family all suffered from the disease. Upon recovering from an attack this young man was noticed to have an eruption which did not disappear. His general health was not affected at this time. His observers state that there would be times when the eruption would seem to lessen, and then reappear with new force. I learned from his family physician, who, by the way, is a relative of the boy's, that they first suspected syphilis. He tells me, further, that he did not venture another diagnosis. I am inclined to believe that he was very suspicious of the trouble, but for family reasons abstained from giving a diagnosis. It was for the purpose of relieving their minds that they brought the boy North. When the boy appeared in my office he had had the trouble for about four years, his general health not being impaired. The disease at this time was pronounced. The voice was quite characteristic, that of a falsetto. Skin was infiltrated with masses which were hard and irregular in outline. A bronzed color existed over most of the body. The masses were elevated above the skin, and not particularly sensitive when seen by me. A thin, yellowish, watery fluid would escape when the tubercle was punctured. These elevated tubercles would from time to time appear, and then disappear, but were generally well marked. These tubercles were of varying sizes, from a pea to a walnut. They were located upon the face, ears, posterior aspect of hands and

arms, some upon the legs, but the body was free. In their place upon the body there were spots which varied from a light yellow to a bronze; some of these spots were anesthetic, others hyper. In the mouth I found a condition which resembled a serpiginous syphilide; this, I now believe, is simply a condition of the disease, probably tubercular deposits. The ears stand from the head, the skin is thickened, and the general facial expression is that characterized by the disease. Ulceration occurred at the great toes and upon the inner side of the thighs. He passed from under my observation at this time, but has again come to me for treatment. His condition now is simply an exaggeration of his first appearance. The tubercles have broken down, and his general health has failed. Appetite is gone; is unable to walk any distance, but mental faculties are clear. Wherever ulceration has taken place a crust forms, and from under this an offensive discharge takes place. The discharge is very offensive and of a brownish color. He is failing gradually.

"Treatment while under my care, at first, was nux. vom. with ol. chaulmoogra internally, and gurjon oil externally, all with the usual results—Nil."

Leprosy is one of the oldest diseases, probably, that we have a history of. Its clinical features were understood in the Mosaic age, and described in chapter xiii of Leviticus. The priests were the authorized board of health in those days, and the suspect was taken before them for examination. The close contact necessary under the Levitical law for the examination would indicate that there was but little fear of contagion, nor is there an instance of contagion recorded in the Bible. It was called an "infectious disease." It is probable from the clinical history given under the law that it was frequently confounded with syphilis and other diseases, as it is at the present day.

There are three forms of leprosy — the tubercular, the anesthetic, and the mixed. In the first the skin is primarily

invaded by the leprous growth, afterward the mucous membrane and viscera. The second form is in the peripheral nerves, the third being a combination of the other two. It would occupy too much time and space to give the distribution and history of the disease in a paper for your discussion; we will therefore dwell briefly on the definition, "etiology," and means of transmission. Whittaker and Osler both describe it as a chronic, infectious disease, produced by the bacillus lepræ, which was first discovered by Hausen and Neisser in 1879. The best bacteriologists deny any hereditary transmission. (Whittaker.)

Probably the most systematic and thorough examination ever made of this disease was by the Indian Commission sent out by the Royal College of Physicians and Surgeons, of London, in 1890 and 1891. They spent several months visiting asylums in various parts of India, after which they met at a certain point and occupied considerable time in pathological and bacteriological investigation. They examined 2,371 cases, and out of this number there were 264, or 11.1 per cent, in which a family taint was supposed to exist, but only 4 per cent where the disease was transmitted directly from parent to offspring, where one or both parents were lepers. Taking ten years as the minimum age, there were 6.6 per cent, and taking sixteen years as the minimum, 7.31 per cent of children who had one or both parents lepers that took the disease. Other influences than heredity must be considered as well, from the fact that they were associated daily with lepers, and it is probable that any hereditary taint would show itself before ten years. Hausen visited North America to inquire into the condition of the Norwegian lepers that came to this continent, and found that out of 160 original lepers there were only 17 living, and not one of their descendants had contracted the disease, which is very strong evidence against heredity.

The following, taken from the Leprosy Commission Report, is of interest in the study of heredity as well as

contagion in leprosy: "The issue of 1,564 marriages was 2,915 children, of whom only 78 contracted the disease."

The question of contagion is the one in which we are most directly interested, and the following statements and tables, given briefly from the same committee, will throw much light on the subject: "The most favorable conditions for the transmission of the disease, if contagious, is coming in contact with those who have the disease. In Table II*, on contagion, it is shown that with 719 lepers there lived 1,691 persons, 95 of whom became affected; in 17 the diagnosis was doubtful, making about 5 per cent of those living under the same roof, and in daily contact with lepers, that became victims to the disease. Table III shows that of 381 couples, in which one was affected for at least five years, there were 25 who took it; in one instance the husband was a leper at the time of marriage and died three years later; fourteen years after his wife was attacked with leprosy. In another a wife became a leper sixteen years after the death of her husband, and another in twelve years after. A careful analysis of these cases show that about 4.9 per cent contracted the disease. Of 222 couples that lived together for less than five years, an average of three years, there were only 5 persons, or 2.2 per cent in which the leprosy was transferred from one to another.

The following table, taken from the report of the Leprosy Commission, is very strong evidence against contagion in the common acceptation of the term. In addition to the table given below, the case of Father Damien, whose death from leprosy was the principal incentive for the formation of a Leprosy Commission by the Royal College of Physicians, of London, will be of interest. Father Damien was a missionary to the island of Molakai settlement of lepers for sixteen years before becoming a victim of the disease, and in order to make them feel that he was one of them, and, as he thought, be better able to influence them in his religious

* The tables are omitted.

work, he lived as they did, in dirt and squalor, ate out of the same dishes, smoked the same pipes, slept in their beds; notwithstanding all this he was sixteen years with them before he took the disease. My friend, Dr. Leonard Freeman, of Cincinnati, visited the island of Molakai some three years ago, and met there a man from Cincinnati who had given up a fortune and social position to become a missionary among these poor unfortunates. He had been there five years, during which time it was his daily custom to go to a little cottage on the beach, on the veranda of which would gather the lepers, whose wounds and sores he would wash, anoint, and dress. At the time Dr. Freeman was there he had no signs of the disease. He relates another instance of a man and his wife: the former had been afflicted for twelve years; the last four he had been unable to feed himself, having lost every joint of fingers and toes. He begged his wife, who was in good health, to leave him and go to her friends, but she remained with him, and said she would do so until he died. During all this time she had been his faithful nurse, feeding him and dressing his wounds without contracting leprosy. The table as given below is of like evidence:

TABLE IV*a*.

EVIDENCE AFFORDED BY ASYLUM OFFICIALS.

Name of Asylum.	Capacity of Official.	Terms of Office.	Condition.	Remarks.
AGRA. 5 officials.	1. Hospital assistant.	14 years.	Healthy.	1. Does not live at asylum, but visits it twice a week.
	2. Cook.	30 years.	Healthy.	2. Does not live at asylum, but cooks there every day.
	3. Water car'r.	15 years.	Healthy.	4. Lives at asylum with wife and family.
	4. Sweeper.	15 years.	Died healthy.	5. These men had to rub gurjon oil on the lepers, and did so for one year; they are quite healthy.
	5. Dressers.	1 year.	Healthy.	
ALMORA. 3 officials.	1. Resident super'd'nt.	20 years.	Healthy.	1. Aged 42 years, is married, and has eight children, varying in age from 18 to 2 years. Whole family live in asylum compound, and are quite healthy.
	2. Asylum assistant.	25 years,	Healthy.	
	3. Asylum assistant.	17 years.	Healthy.	

Name of Asylum.	Capacity of Official.	Terms of Office.	Condition.	Remarks.
CALCUTTA. 10 officials.	1. Washerman.	20 years.	Healthy.	1. Has to wash clothes of the inmates of the asylum.
	2. Washerman.	14 years.	Healthy.	
	3. Porter.	7 years.	Healthy.	
	4. Dresser.	15 years.	Healthy.	All the servants of the asylum have to change their clothes once a day, and the dressers twice. All have to take a daily bath.
	5. Dresser.	9 years.	Healthy.	
	6. Dresser.	1¼ yrs.	Healthy.	
	7. Sweeper.	7 years.	Healthy.	
	8. Sweeper.	4 years.	Healthy.	
	9. Sweeper.	4 years.	Healthy.	
	10. Water car'r.	17 years.	Healthy.	
CALICUT. 3 officials.	1. Cook.	30 years.	Healthy.	
	2. Ward-cooly.	12 years.	Healthy.	
	3. Sweeper.	23 years.	Leper for 2 years	3. His cousin is also a leper.
DEHRA DUN. 5 officials.	1. Keeper.	12 years.	Healthy.	All live on the premises of the asylum.
	2. Sweeper.	12 years.	Healthy.	
	3. Sweeper.	12 years.	Healthy.	
	4. Sweeper.	12 years.	Healthy.	
	5. Gardener.	6 years.	Healthy.	
DHARMALA. 4 officials.	1. Compound'r	13 years.	Healthy.	Live on the premises in a detached bungalow with wife and family.
	2. Gardener.	1 year.	Healthy.	
	3. Keeper.	3 years.	Healthy.	
	4. Sweeper.	1 year.	Healthy.	
MADRAS. 9 officials.	1. Dresser.	13 years.	Healthy.	
	2. Dresser.	12 years.	Healthy.	
	3. Dresser.	10 years.	Healthy.	
	4. Dresser.	9 years.	Healthy.	
	5. Dresser.	3 years.	Healthy.	7. Has to mend clothes of the lepers.
	6. Dresser.	3 years.	Healthy.	8. Has to wash the clothes of lepers.
	7. Tailor.	12 years.	Healthy.	
	8. Washer.	8 years.	Healthy.	9. Was treated for leprosy before he joined the asylum.
	9. Cook.	15 years.	Leper.	
NAINI. 1 official.	1. Attendant.	Many y's.	Healthy.	
RAWAL-PINDI. 3 officials.	1. Dresser.	25 years.	Healthy.	
	2. Messenger.	13½ yrs.	Doubtful.	
	3. Cook.	25 years.	Healthy.	
SIALCOT. 5 officials.	1. Compound'r	22 years.	Healthy.	The former water carrier left after being at the asylum for 14 years; he is still alive and healthy.
	2. Water car'r.	12 years.	Healthy.	
	3. Sweeper.	2 years.	Healthy.	
	4. Washerman.	2 years.	Healthy.	
	5. Gardener.	2 years.	Healthy.	

Name of Asylum.	Capacity of Official.	Terms of Office.	Condition.	Remarks.
SUBATHU. 5 officials.	1. Messenger.	12 years.	Healthy.	All these officials live on the premises.
	2. Carpenter.	15 years.	Healthy.	
	3. Compound'r	8 years.	Healthy.	
	4. Compound'r	8 years.	Healthy.	
	5. Missionary.	4 years.	Healthy.	
TARN TARAN. 11 officials.	1. Keeper.	3 years.	Healthy.	
	2. Gardener.	13 years.	Healthy.	
	3. Gardener.	6 years.	Healthy.	
	4. Water car'r.	4 years.	Healthy.	
	5. Water car'r.	1 year.	Healthy.	
	6. Water car'r.	½ year.	Healthy.	
	7. Sweeper.	7 years.	Healthy.	
	8. Sweeper.	6 years.	Healthy.	
	9. Sweeper.	5 years.	Healthy.	
	10. Sweeper.	1 year.	Healthy.	
	11. Compound'r	2 years.	Healthy.	

In this table there were sixty-nine asylum officials, only 3 per cent becoming affected, notwithstanding they came into the closest contact, handling the clothing, dressing the wounds, sweeping the floors, etc., the most favorable possible condition for contracting the disease. In Table IV*b* there were thirty persons who lived in asylums with lepers under similar conditions to Table IV*a*, and none of them contracted the disease. In Table V evidence is shown in favor of contagion by persons eating and drinking with lepers: there were 86 lepers; 212 persons ate and drank with them, 21 contracted the disease. The foregoing are clinical examples of the disease in a country where it is endemic. Investigation by the Hawaiian Government of the disease in the Sandwich Islands gave a similar result. The disease is an infectious one, due to a specific germ, as before stated, the bacillus lepræ, a micro-organism similar to the bacillus tuberculosis, and only differentiated from the latter by staining methods and inoculation. It is the living organism that produces the disease, and is the main point in the consideration of the disease. It is a pathogenic germ, which in the

human being produces the characteristic features of leprosy. It is found in some of the fluids, juices, tissues, or excretions of all who suffer from the disease. Kobner is the only pathologist who claims to have found the leprosy bacilli in the blood. In blister fluid drawn from over the tubercles or ulcers they are found in abundance, but none are found in a like fluid drawn from healthy patch of skin; they are seldom found in urine; the sputum usually contains them in abundance, especially where there are ulcers on the mucous membrane. The experiments with cultures have given varied results: while a majority have failed to get a pure culture, a minority have met with undoubted success; among the latter may be mentioned the names of Bordoni, Uffredizzi, Guianturco, Arning, Neisser, and Hausen. Inoculation in the human and in animals have given negative results as a rule. Arning succeeded in inoculating a Hawaiian convict by the name of Keanu, who, in consideration of a commutation of capital punishment, voluntarily consented to inoculation in the left arm from a leprous tubercle. It was done by Dr. Arning on the 30th day of September, 1884; at the time there were no symptoms of leprosy existing; in four weeks rheumatic pains appeared in the shoulder and wrist; in six months a small tubercle appeared at the side of inoculation; in four years the patient was at the height of the disease. On the other hand, a Norwegian physician attempted to inoculate himself and others by introducing under the skin leprous tubercles, blood, and pus from lepers without effect. Profeta and Cagnina both met with the same result. Kobner and Hausen failed to inoculate monkeys. All the foregoing evidence proves that leprosy is a disease that is hard to transmit from one individual to another. There is but little doubt that the lepræ bacillus is of very low vitality, very quickly becoming a prey to natural attenuation outside the living body, and developed in the body only under the most favorable conditions. That it is contagious to a certain

degree we must admit, but it is probably the lowest in the list of contagious diseases, requiring the most favorable conditions in country, climate, habits, and social relations of the people for its transmission. The facts as stated above, that of 160 lepers who came to America from Norway, not one of their offspring contracted the disease, nor is there a history of any one having taken it from them, would indicate that this country and the habits of our people are not favorable for its development. The climates of India, the West Indies, and the Sandwich Islands, and the filthy customs of their inhabitants, such as eating out of the same vessels, lepers and all, using their fingers instead of knives, forks, or spoons, smoking the same pipe, etc., all are contributing causes for the spreading of the disease; yet with all these favorable conditions the evidences of contagion were so indefinite that the Leprosy Commission were unable to agree that it was "contagious in the common acceptation of the term."

In considering the subject in its relations to this country we should use every precaution against the spread of the disease, however small the risk of contagion; its loathsome and incurable nature imposes this duty upon us. It is also incumbent upon us to provide for the comfort of such of these poor unfortunates as come among us; for this purpose lazarettos or hospitals should be erected in those parts of the United States where it is most prevalent, and such laws enacted as will enable the boards of health of the different States to get transportation and consign them to those asylums. The most of the cases being on the Atlantic and Pacific coasts, lazarettos established in Key West, New York, San Francisco, Los Angeles, and New Orleans would accommodate all and soon stamp out the disease.

Treatment. Under this head there is but little to say. It has always been classed as an incurable disease, and its treatment mainly palliative. Cleanliness as far as possible is

of the greatest importance, gurjon oil externally, and chaulmoogra, nux vom., and arsenic internally, seem to be the favorite remedies. Bacteriological investigations are giving us a peep into the future that bids us hope that something may be discovered in the ptomaines of micro-organisms that will give us immunity from some, if not all, of these diseases. *Dignus vindice nodus.*

In Memoriam.

DR. WILLIAM MANDEVILLE GRIFFITHS.

Dr. William M. Griffiths was born in Louisville, February 16, 1855, and died December 24, 1893. He was the son of the late Dr. Thomas J. Griffiths, who was for many years surgeon of the United States Marine Hospital in this city. His literary education was received in the public schools. He acquitted himself with honors at the Male High School. He was his father's pupil in medicine, and graduated from the University of Louisville in 1876. Soon after his graduation he was appointed assistant surgeon to the United States Marine Hospital in this city, and held the position until his death. He was offered the position of chief surgeon in the United States Marine Hospital, but declined, because that officer is transferred every three years.

Dr. Griffiths was one of the brightest professional young men in Louisville. He loved his profession, and was one of the most skillful and successful practitioners in the Ohio Valley. His was a cheerful disposition; he was witty and a fine conversationalist and a staunch friend. His aged mother and his wife and little daughter, six years of age, survive him.

J. P. THOMAS, M. D.

Joseph Potts Thomas was born in Clarksville, Tenn., September 9, 1830, the youngest son of Joseph Potts Thomas and Sarah (Duvall) Thomas, both of whom were originally from Virginia.

His first years were spent in the study and practice of pharmacy, where he learned well the lessons of carefulness,

DR. WILLIAM M. GRIFFITHS.

accuracy, constancy, and thoroughness which so distinguished his after career as a physician. He graduated first from Shelby Medical College, now the Medical Department of Vanderbilt University, Nashville, Tenn., and after many years practice he took an *ad eundem* degree from the Kentucky School of Medicine, Louisville. He was a good diagnostician, an able therapeutist, and believed in the efficacy of drugs for the cure and alleviation of disease. He sustained himself well in his medical studies. Notwithstanding he spent forty years in the arduous duties of a country practice, seven miles from a village post-office, and also had the care and control of a large farm, he found time to read almost every thing in current medical literature. The features of his professional career most distinctly meritorious were his hearty devotion to his daily work, his cheerful speech and manner, his uniform kindness to young men who were entering the profession, and to physicians desiring his services; and he was always willing to comply when asked to contribute his experience to the interest of the medical societies in which he held membership, the most notable of which was the Kentucky State Medical Society, being its president in 1885, when the thirtieth annual session was held in Winchester. He was also an active member of the Mississippi Valley Medical Association, of the American Public Health Association, etc.

He was married first to Miss Louisa Radford, in 1854, of which union five children survive. His second marriage was to Miss Emma Kellogg, of Brooklyn, N. Y., who is left to mourn his death.

For many years he was an earnest, faithful, and consistent member of the Baptist Church at Pembroke, and after his removal to Hopkinsville, where he resided for the past four years, and in which place he died, his faith continued steadfast to the church of his early love. His integrity and purity of life and character sustained the respect and confidence of his fellow-men. Surrounded by a loving family, and every

thing which makes life pleasant, he peacefully passed from this to a higher sphere on June 25, 1894, deeply mourned by a wide circle of friends, acquaintances, and brother physicians.

S. B.

PROFESSOR ROBERT PETER, M. D.

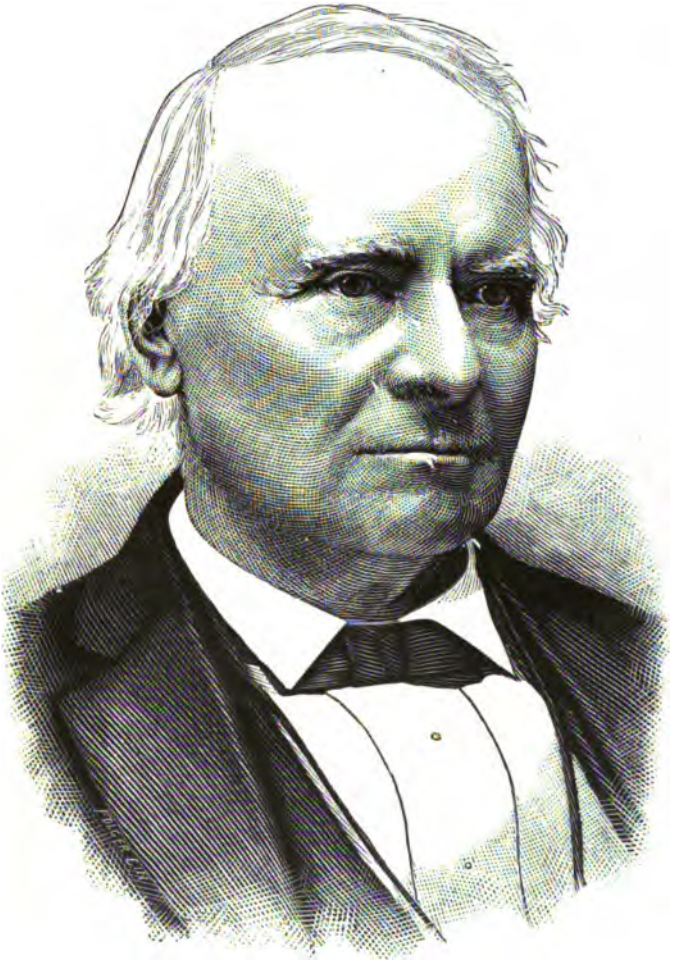
*Dr. Peter was born in Cornwall, England, January 21, 1805. At the age of sixteen he arrived in this country with his parents, and began life as a drug clerk in Pittsburgh, and there developed unusual taste and talent for chemistry and physical sciences. By study, experiments, and lectures he soon became known as a man of science. In 1832 he made Lexington his home, a home he was destined greatly to honor and to cause her name to be honored abroad.

In 1834 he received the doctor's degree at Transylvania University. Soon thereafter his *Alma Mater* honored this worthy and gifted son with the chair of chemistry and pharmacy.

Dr. Peter was the last survivor of the now flourishing Kentucky School of Medicine at Louisville, established in 1850, and during the meeting of the Kentucky State Medical Society in 1892 the faculty of that institution honored Dr. Peter with resolutions of distinguished consideration.

When, on Thursday, it was said that "a great man had fallen" in our midst, every one knew that Dr. Robert Peter was dead. He had been known and honored by three generations of citizens of Lexington. For the past half century, and throughout the Mississippi Valley, he has been remembered as "Professor" Peter, for during that period medical men of eminence have pointed with pride to his name on the diplomas received at old Transylvania University. And in a retrospect of those historic and eventful days, in a review of medical science and teaching for fifty years, Dr. Robert

*Read to and adopted by physicians of Lexington and Fayette County at a public meeting, April 29, 1894.



DR. ROBERT PETER.

Peter stands out as an honorable and conspicuous figure. No eye can overlook it, no student can fail to observe it, and no medical biographer can omit it. An adequate account of Dr. Peter's life-work in the cause of medical science and the allied branches of chemistry, botany, and geology will fill volumes, valuable additions to any scholar's library.

His history and personality form pleasing and impressive chapters in a well-ordered and useful life, to which time and proprieties at this time permit only a reference. His well-preserved form and figure, smooth face and ruddy complexion, quick step and industrious habits and kindly greetings would forbid even the suggestion, as he was seen passing along our streets, that a nonogenarian was moving in our midst.

My friends, along with our admiration for Dr. Peter's high character, for his genius and his learning, along with our appreciation of his devotion and usefulness to science and to his race, and forever associated with our love for him as a friend, will be our remembrance of the lovely blending with his character of that inestimable precious jewel, his modesty, which was truly beautiful, and which so often prevented his real worth and work from being as well known as they deserved. I have heard that his valuable researches in botany so attracted the attention of the distinguished botanist, Prof. Asa Gray, of Harvard University, that in his celebrated and now classic work, published many years ago, he named a species "in honor of the late Prof. Robert Peter, of Lexington, Kentucky," and our friend on whom the honor was conferred survived the celebrated author for six years.

Probably his greatest life-work, aside from his labors in the professor's chair and laboratory, was his ably and successfully conducting the chemical department of the Kentucky Geological Survey in 1854 to 1861, published in four quarto volumes. The year 1865 found Dr. Peter Professor of Chemistry in the Kentucky University. Afterward a similar chair in

the State College was tendered him, which he held with distinguished ability and satisfaction to within a few years, when the honorary "Emeritus" was conferred, and even thereafter his chosen place was in the laboratory. In the department of chemistry Dr. Peter had few equals, and for half a century his name and labors have been associated with Sullivan, Davy, Dalton, Gay Lussac, Liebig, Faraday, and scientists of like form.

In a text-book published forty years ago by the Nestor of American surgery, Dr. Samuel D. Gross, reference therein was made to Dr. Robert Peter as the " medical philosopher of the West."

His days were prolonged in quiet comfort and usefulness far beyond that allotted by the Psalmist, and when he passed from mortal view he left a light behind him and an honored and unsullied name worthy of lasting remembrance.

His friends of the medical profession in public meeting assembled present this tribute of respect to his memory, desiring that a copy thereof be sent to the family of our departed friend, with assurance of our heartfelt sympathy and condolence. We also wish them published in the papers of this city and of Pittsburgh and the medical journals of the State.

—[LYMAN BEECHER TODD, M. D., LEXINGTON, KY.

At the close of a lecture Saturday morning at the Kentucky School of Medicine the hall was instantly darkened, and on the large screen was thrown the picture of Prof. Robert Peter, the noted chemist, who died in Lexington last Thursday.

"To-day," said Prof. Woody, "the good people of Lexington will lay this grand old man in his last resting place. He was the oldest medical professor in America, the last of the illustrious ten that founded the Kentucky School of Medicine and constituted its first faculty, the first to fill the chair that I have the honor to occupy. It was in 1805 he first saw

the light in Cornwall, England. He came to this country in 1821 and settled at Pittsburgh, Pa. There he learned the drug trade, and developed an extraordinary talent for chemistry and other physical sciences. In 1830 he became Professor of Chemistry in the Western University of Pennsylvania. In 1832 he moved to Lexington, Ky., to fill the chair of chemistry in Morrison College. While there he took the degree of Doctor of Medicine in Translyvania University, an institution founded in the beginning of the present century, and for more than a half century the greatest west of the Alleghanies. A few years later he became its professor of chemistry. In 1850, when it was decided to move the medical department to Louisville and organize it as the Kentucky School of Medicine, he came with it and was its first professor of chemistry. In a few years, however, he moved back to Lexington and rejoined the old university. After the war he took the chair of chemistry in the Agricultural and Mechanical College, laboring with unabated zeal until the end of his long life of eighty-nine years.

"It was only by years of painful labor that the English boy grew into the American scientist. The habit of labor became second nature, and when nearly ninety years old he was still toiling. He reminds me of an incident told of a celebrated painter. A foreign dignitary visited the studio and was surprised to find the old man, though bent with the weight of fourscore years, still at labor. 'Signor,' said he, 'you are acknowledged to be the greatest of painters, and now in the evening of life why not rest?' 'Rest!' said the old man, looking up from his canvas, 'I can have at most but a few years for work, and I have all eternity for rest.'"

—[DR. S E. WOODY, LOUISVILLE, KY.

DR. JOSEPH PERKINS LETCHER.

"Praise is a debt we owe to the virtues of others."
—*Sir Thomas Browne.*

"The purpose is commemorative and historical of a gentle and a beneficent life." **—*William Winter.***

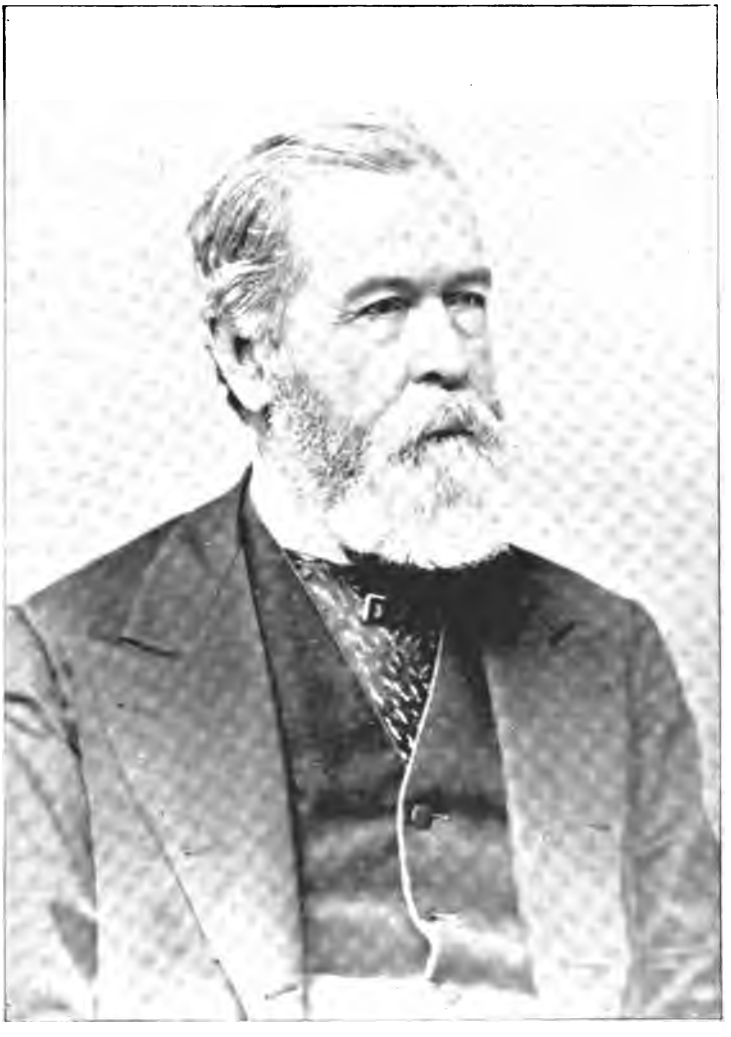
"The death of a representative man marks an era in the history of the science in which he acted a conspicuous part: and it becomes those who have been associated with him to commemorate his death by passing in review the important events of his life, and by bringing into relief the distinguished acts by which he identified himself with the profession which he adorned."

On the sixth day of June, eighteen hundred and seven, in a well-regulated and upright Kentucky homestead—a home of refinement, intelligence, and generous hospitality, about one mile from the town of Lancaster, in the historic county of Garrard, Dr. Joseph Perkins Letcher first saw the light of the world which he was destined greatly to enjoy and to benefit.

His grandfather, Stephen Giles Letcher, uncle of Governor John Letcher, of Virginia—a native of Virginia, of Huguenot ancestry, married Elizabeth Perkins, of South Carolina. To them were born twelve children, the eldest of whom was General Benjamin Letcher, the father of Joseph Perkins.

Dr. Joseph Perkins Letcher—1807–1894—was three times married; February 18, 1830, to Ellen Falls Cook, daughter of William and Sarah Cook, a woman of fine musical talent, literary taste and culture. To them four children were born, William Cook, a physician of promise who died at early manhood; Maria, married General Gordon Granger, United States Army; Benjamin, merchant, lives in New York; Ellen Letcher Owsley, widow of Judge M. C. Owsley, resides at Lancaster with three sons and a daughter; their mother died in 1850.

In 1854 he married Mrs. Susan Price, whose son, William T. Price, is engaged in literary pursuits in New York. She



DR. JOSEPH PERKINS LETCHER.

was greatly beloved by her step-children and universally respected.

In January, 1864, Dr. Letcher married Mrs. Florida M. Price, a woman possessed of rare beauty and grace, lovely Christian virtues, admired and loved by all who came within range of her acquaintance and her influence. She had two daughters, Mabelle and Mattie Price; one survives, Mrs. Mattie Price Kerfoot, whose husband, Rev. Frank Howard Kerfoot, D. D., an eloquent preacher, a scholar of fine attainments, is a professor in the Baptist Theological Seminary at Louisville, doing a useful work in the Church of God.

A meeting of the physicians of Lexington and Fayette County was held Monday morning, January 8, 1894, at the office of Dr. Robert Luther Willis, when Dr. Benjamin Lindsay Coleman was called to preside, and Dr. James Cantrill Carrick was appointed secretary. The object of the meeting, as stated, was to offer a suitable tribute of respect to the memory of the late Dr. Joseph Perkins Letcher, who for many years was a most highly esteemed physician of Lexington. On motion a committee consisting of Drs. Lyman Beecher Todd, Henry Martyn Skillman, Francis Marion Green, William O. Sweeney, and Samuel W. Willis, of Clark County, was appointed, who, upon retiring and consultation, presented through the chairman, Dr. Todd, the following sketch and tribute which were adopted by a rising vote:

The physicians of Lexington and Fayette County have heard with sincere regret of the death of Dr. Joseph Perkins Letcher, which occurred at his home in Lancaster, on Saturday afternoon, January 6, 1894, within a few months of his eighty-seventh year. On account of his unusually long, useful, and honorable professional career, on account of his early and active co-operation in medical organizations in Kentucky, and on account of many years of pleasant association with us in practice in Lexington, we consider it eminently appropriate and due that we, his professional brethren and friends, in public meeting assembled, should thus express, though feebly, our appreciation of his worth and

character, and our sympathy and condolence with his family and many relatives at his departure. The place of an individual's nativity and the environments thereof often exert a powerful and lasting influence upon that life. Truly it was thus with Dr. Letcher. He was a native of the historic county of Garrard, and he descended from an ancestry likewise historic for more than a century in Virginia and Kentucky. The county of Garrard, whence went forth two governors, Robert P. Letcher, 1840, and William Owsley, 1844, two chief justices of Kentucky, John Boyle and George Robertson, 1790–1874, and three ministers to foreign courts, distinguished physicians and lawyers of the family of the brave and gallant hero, Col. William R. McKee, who fell leading his regiment of Kentucky troops at Buena Vista, February 22, 1846.

Dr. Letcher's father, a useful citizen, of unsullied character, during a long life was clerk of both circuit and county courts of Garrard County, and of the latter often performed the functions of judge. He was the last survivor of six brothers, four of whom were physicians, each of whom exerted a large influence in the special section of the State where he lived and labored. Many of Dr. Letcher's earlier years were spent copying records and deeds in his father's clerk's office; to the great advantage that work had been to him—careful and systematic training—he often referred with pleasure in after life. Having received an excellent and classical education he spent two years at the Medical Department of the Transylvania University at Lexington, then in its palmy days, from which he received the degree of Doctor of Medicine in the spring of 1826. The greater number of his classmates have passed away. One, however, to whom he was always greatly attached, their mutual friendship continuing during their lives, still lives, Dr. Joseph S. Halstead, at Breckinridge, Missouri, formerly one of Lexington's most useful, beloved, and honored physicians, now quietly passing the evening of life, surrounded by every comfort and a large and devoted family of children and grandchildren. Dr. Letcher, immediately after graduation, remained a few years at Paint Lick in Garrard County, after which he removed to the town of Nicholasville in Jessamine County, and there spent the greater portion of his laborious, useful, and highly appreciated professional life. In October, 1851, Dr. Letcher, with Drs. Jephtha Dudley, of Nicho-

lasville, Samuel D. Gross, L. P. Yandell, of Louisville, William L. Sutton, of Georgetown, William S. Chipley, of Lexington, and Dr. Ethelbert Ludlow Dudley, the distinguished surgeon, of Lexington, and others, assembled at Frankfort and organized the Kentucky State Medical Society, and at the succeeding meeting at Louisville he was honored with the position of first vice-president, and in the Society he always manifested a lively interest, often delighted to attend the meetings, enjoying reunion of his friends in the profession, and listening to instructive and scientific essays and discussions; particularly when the meeting was held at Danville, in 1879, when he listened with infinite delight to his friend, Dr. S. D. Gross, in the delivery of his matchless and eloquent address at the dedication by the Kentucky State Medical Society of the monument to the immortal ovariotomist, Dr. Ephraim McDowell.

In 1859 Dr. Letcher was invited to Keokuk, being elected Professor of the "Diseases of Women and Children" in the Medical Department of the University of Iowa. He remained only a short time, returning and resuming practice among his early and devoted friends in Jessamine County. In 1867 he came to reside in Lexington, chiefly for educational advantages to his two lovely step-daughters, to whom he was devotedly attached. Here he engaged in active practice, and continued until the infirmities of advancing age compelled his return a few years ago to the pleasant home of his daughter, Mrs. Ellen Letcher Owsley, at Lancaster. During his residence in Lexington Dr. Letcher made many warm and valued friends. His home was one of hospitality and refinement. He was a well-informed, judicious, and excellent practitioner of medicine; fond of best works in every department of literature, and read continually. He possessed an excellent and well-trained memory, fine social disposition, genial and kindly manner, was an interesting companion, a gentleman of the old school, and in many ways worthy of imitation. As before said, Lancaster was his birthplace, and surely it was a beautiful Providence that the closing years of his life, unusually and pleasantly protracted, should be spent amid the associations of his birth, the scenes of his early and happy manhood, comfortably and pleasantly spent, surrounded by his fond and devotedly loving daughter, grandchildren, kindred, and remaining friends of his early days, in full view of the green hills far away,

beautiful river, lovely pastures and flowers of his old-loved Garrard County.

When going to visit Dr. Letcher in his last illness, the writer was introduced to a lady on the train who desired loving remembrance to be given to him. For many years he had been her mother's family physician and hers. She said, with feeling and warmth of affection, "Dr. Todd, I am happy to tell you that for a long time Dr. Letcher has been eating sweetest and most comforting bread, which, with his own hands, he had cast upon the waters, and which has abundantly returned to him after many days, for no man ever lived in Jessamine County who was more kind to the poor, and did more good in this community than Dr. Joseph Letcher; and surely I do know, because I myself have lived in Jessamine County for more than sixty years." I said, "Madam, that is high praise for a physician; it is indeed a precious and a priceless legacy to his family;" "and also to the country," she quickly and quietly added, "because the character and life of such a man as Dr. Letcher are great blessings to any country."

It was resolved that the foregoing be published in the papers of Lexington, Nicholasville, and Lancaster, and in the medical journals of Kentucky, and that Dr. Letcher's family be furnished with a copy signed by Benjamin Lindsay Coleman, Chairman, and James Cantrill Carrick, Secretary.

Dr. Letcher's natural refinement and affectionate disposition were manifested by his respect for aged persons; so often have I heard him say, "Todd, their time here will be short, let us make it for them as cheerful as possible;" as well as his fondness for flowers and love for little children. Wherever he lived he cultivated flowers. Like the historian, Bancroft, he made the rose his specialty. Seldom did he leave his home in the morning without flowers on his breast, and also in his hand to give to friends on the way to his office. And frequently have I seen him cutting and distributing beautiful flowers to groups of children who were playing around his door. Cheerfulness, kindness, and usefulness, sunshine and warmth characterize a noble and well-spent life, and therein

is often found a vein of wit and a keen sense of the humorous, which we call the spice of life, for

> "A little nonsense now and then,
> Is relished by the best of men."

Dr. Letcher enjoyed good anecdotes, and was particularly happy in telling them, and by them often he was apt "to point a moral or adorn a tale."

Dr. Letcher was a sociable and a companionable person, making and attaching friends everywhere to him, and among all conditions of life. He was always thoughtful of and generous to the poor; to them his heart was always warm and his hand was ever open; to them his most arduous and unremitting professional services were given for many years, expecting no compensation, and often giving them money with which to buy needed medicine.

He always was deeply interested in National and State affairs as well as in his profession. He was personally acquainted with many of the leading public men of his day; a life-long friend and admirer of Mr. Clay; full of interesting reminiscences and historical incidents in the early history of his beloved native State. Being a constant reader of the best books and periodicals he was a ready, agreeable, and instructive conversationalist. He was a great student of the Bible and its commentaries. His life was cheered by the intimate friendship of many noble and good men.

As the real beauty of a landscape or a painting can best be seen when viewed from different standpoints, thus can the life and character of a person best be learned from those who have known him well at different periods of his life, and under various and trying conditions and circumstances, and as I would now present a truthful picture of a friend who has occupied a prominent position in communities where his long life has been spent, I consider myself happy and fortunate in receiving and presenting testimony from persons adequately

competent to bear witness of him. His stepson, Mr. William T. Price, of New York City, a journalist and author of reputation and high literary character, thus justly and affectionately speaks of Dr. Letcher:

I was a mere lad when I came under his influence, and I owe to him much of the better part of myself. Dr. Letcher was a man of eminently just views of life, and his sympathies were as broad as those of any one that I have ever known; his feeling of humanity was very great; never an extremist; recognizing the social and political conditions about him, he apprehended every progressive movement. Perhaps his association with all classes of men in his capacity as a physician stimulated this breadth of feeling. In the old days of slavery Dr. Letcher was held in uncommon respect by the negroes of the community, and I have no doubt that his kindly condescension, his healthful advice and cheering words to them softened the asperities of their bondage. I can not help but believe that his many acts of kindness and courtesy in this relation are to be remembered as among the saving features of that system of society. If the slave-life had been all hardship the outcome of it would not have been so harmless. He was a man of heart, and his kind advice was shared by men of all kinds. His capacity for friendship was very remarkable, and surely no one could have given greater pleasure in conversation to a greater number of people. Besides, he was instructive and stimulating. The value of such a life to any community is not to be estimated by the reward that one gains for himself.

His surely must have been a kindly nature to establish such a steadfast feeling. During the last period of separation, my ten years of life in New York, I adopted the device of mailing to him with the utmost punctuality the Sunday Sun. In this way I am assured that the token of remembrance was welcomed by him as proof of the sincerity of my affection for him, and that my gratitude for his counsel and nurture shall not depart from me. Should fortune permit me to stand beside his grave it would be with the utmost reverence for his memory and the deepest affection.

A highly valued and gifted friend of the author, Miss Jessamine Byrd Woodson, daughter of the highly respected and honorable citizen, Tucker Woodson, Esq., of Jessamine

County, a lady who enjoyed excellent opportunities for knowing Dr. Letcher long and well, thus beautifully and tenderly writes:

I love to recall his peculiarities of character and feature and figure, and can not withhold the violet of praise we owe to his virtues, which were many and rare. From my earliest recollection he has been associated with our family in some way, as the good and skillful physician, in whom we had unbounded confidence, or the friend loyal and true, and as a connection, having married two of our cousins. He had his own original ideas of many things, psychology, spiritualism, God's providence, and indeed every thing that interests a thoughtful religious person. His insight into character was remarkable, and he rather prided himself upon it. His manner inspired confidence, and no one was afraid of him. I have heard him say that he tried to learn something from every one he met, even in the lowest walks of life; and the many questions he could ask often amused his friends, who sometimes accused him of undue curiosity. He loved nature, too, in all her aspects; the clouds, the trees, the grass, the birds, the flowers, all gave him pleasure to the last. His declining years showed in a remarkable degree the unspeakable advantages of a well-cultivated mind, as well as the possession of the "greatest thing in the world," which enabled him to enjoy life as long as it was given him, and to meet the King of Terrors without fear. In my last visit to him in August the only change I noticed was a greater tenderness toward his friends and a stronger faith and a greater love for the blessed Savior of men, in whose atoning blood alone he trusted for salvation. I thank God that he has created such men, and that it has been my privilege to know them.

To the noble and beneficent profession of his choice, Dr. Letcher devoted a studious, earnest, and long life, doing great good and reaping ample reward; and he enjoyed in a liberal degree the privileges of a well-earned reputation. He departed in the ripeness of time, and in the full maturity of experience with the purposes and possibilities of his honorable and useful life fulfilled. It was nearing sundown, typical of life's

close, on the eighth day of the new year, 1894, with the simple, solemn but impressive rites of the church he dearly loved, the Second Presbyterian Church at Lexington, the officers, his own chosen pall-bearers, surrounded by his family, kindred from distant parts of the State, by his devoted friends and professional brethren, when he was buried in his family lot, a beautiful sunny slope of his own selection, which in life he loved often to visit, in the Lexington cemetery, with flowers upon his noble, generous, untroubled breast, and his feet to the rising sun. There would I write:

DOCTOR JOSEPH PERKINS LETCHER.

Christian Gentleman. Good Physician. Faithful Friend.

—[LYMAN BEECHER TODD, M. D., LEXINGTON, KY.

DR. MATTHEW THOMPSON SCOTT.

"One by one the shining stars are setting."

Seldom has our community been more shocked than when, on Thursday morning, January 25, 1894, the sad news came to Lexington that Dr. Matt. Scott was dead. He suddenly died at San Antonio, Texas, whither, scarcely three months previous, he had gone for the benefit of his health, and whence we hoped that the warm and genial spring-time would bring him back to us better and stronger. But alas! human hopes, how destined are they to be blighted! the flower blasted ere the fruit.

Dr. Scott, though born in the city of New York, March 14, 1855, to us all seemed "a native here and to the manner born," for his father, Dr. John W. Scott, a native of this county, returned in 1866—when his son was a little boy—to Lexington, which afterward became his home. Here our friend's happy youth was spent.

In the spring of 1874 he began the study of medicine with the distinguished Dr. John Davies Jackson, of Danville,

DR. MATTHEW T. SCOTT.

Ky., a man of wide professional reputation in general practice, and as an army surgeon and a medical writer, and it is but due to both, who have passed away, to say that the pupil did honor to his noble master. After some months young Scott, then in his twentieth year, entered the New York College of Physicians and Surgeons, and a year later the University of New York, where he took his medical degree in 1877. He returned to Lexington and began the practice of medicine, which he continued until impaired health compelled him to halt. Dr. Scott took pride in his profession, and contributed to its dignity, its honor, and its usefulness. Early in his professional life he manifested a taste for and displayed skill in surgery, and in his achievements gave promise of a brilliant and successful career.

Dr. Scott was for years a member of the Kentucky State Medical Society—and the papers he contributed at its meetings we always heard with pleasure, interest, and profit—of the Lexington and Fayette County Medical Society, of which, recently, he had been president. He was a commissioner of the Eastern Kentucky Lunatic Asylum. He was a member and secretary of the United States Examining Board of Pensions. He was long a member of the Second Presbyterian Church, and was a trustee at the time of his death.

And now has passed from mortal view Dr. Matthew Thompson Scott. A useful man, a citizen without reproach, an honorable physician and a Christian gentleman, and at the early age of thirty-nine years.

—[LYMAN BEECHER TODD, M. D., LEXINGTON, KY.

KENTUCKY STATE MEDICAL SOCIETY.

THIRTY-NINTH ANNUAL MEETING, HELD IN SHELBYVILLE, KENTUCKY, JUNE 6, 7, AND 8, 1894.

FIRST DAY—*Afternoon Session.*

The Society was called to order at 2 P. M. by the President, Dr. John Q. A. Stewart, of Frankfort.

Prayer was offered by the Rev. B. F. Hungerford.

The Rev. Dr. Poynter, Science Hill Seminary, delivered the address of welcome.

The report of the Committee of Arrangements was read by the chairman, Dr. J. M. Harwood.

Permanent Secretary Dr. Steele Bailey read his report:

Mr. President, Gentlemen of the Kentucky State Medical Society:

The report of the Secretary to the Thirty-ninth Annual Meeting of the Society will be brief, and simply narrates that the ordinary duties of his office have been performed in the usual manner—always with dispatch and courtesy.

It is comfortable for him to state that the condition of affairs at the current date is a pleasing and an encouraging one. Facts warrant him in making this averment.

As you well know, the Volume of Transactions, No. 2, new series, was gotten out in most excellent time, thanks to the able and industrious Committee of Publication. It is a living epistle, and speaks for itself. Handsome in appearance, beautifully printed, free from typographical errors, it contains matter couched in good English, abreast of the times, and strictly scientific. We have exchanged the volume with all affiliated States, with the Medical Bureau of the Army and the State Boards of Health which are now publishing reports.

A little matter I ought to mention, though it isn't a pleasant one, but it concerns us at present, is that we are somewhat in

arrears to the publishers, the amount of which doubtless will be mentioned by the Treasurer. Barring this every thing is in good form, and were the times more flush, with a *parity* and *free use* of both coins of the realm, silver and gold, every member would attend our annual reunions, have a good time and pay his dues promptly. There would be no friction; the Secretary and Treasurer would escape denouements and duns, little nonentities, however, which come to us, we suppose, as legacies, being the guardians of the Society upon whom all business depends. Many most excellent members, when it hasn't been convenient to attend the annual meetings, carelessly forget to remit dues to the Secretary, which they would do if they remembered that each name upon the roster entails a cost annually of at least one dollar and fifty cents, or thereabouts.

It is necessary only to mention this fact; the suggestion will be carried out, annoyance spared, and our credit handsomely maintained. Not that the color of our integrity has been questioned, but, speaking after the manner of worldlings, a surplus in public as in private life is always a blessing. Pardon this financial linger!

A word as to the programme, which is now spread before you. As usual it is witty, replete with good things, which will be read and discussed in your hearing.

In the mutability of things, since our last meeting held at the Capital in May one year ago, the Reaper has been making his untimely visits and has taken from us the following respected members:

Dr. Robert Peter, of Lexington, and Dr. Joseph P. Letcher, of Lancaster, both charter members. Also Dr. Matthew T. Scott, of Lexington, and Dr. William Mandeville Griffiths, of Louisville.

There may be others, the knowledge of which hasn't reached this office.

Permit the Secretary to request that upon the demise of a member some brother, in whose province the facts come, notify him at a convenient and early period. The reason is apparent. A memoir of the person, which is his due, may then be arranged for, read at the first annual gathering, and the same incorporated in the Transactions.

Dr. Lyman Beecher Todd, at my request, kindly prepared for the Society memoirs of Drs. Peter, Letcher, and Scott.

The following gentlemen are now representing this Society in San Francisco at the meeting of the American Medical Association: Drs. L. B. Todd, H. Brown, B. L. Coleman, A. D. Price, Andrew Seargent, George E. Davis, F. M. Green, and T. B. Greenley.

With best wishes for the entire success of this the Thirty-ninth Annual Session of the Kentucky State Medical Society, I am faithfully, STEELE BAILEY,
Secretary.

The report of the Committee on Publication, Dr. L. S. McMurtry, Louisville, chairman, was read.

The Permanent Secretary then read several applications for membership, which were favorably acted upon.

A letter from Mr. J. W. Gayle, Secretary of the Kentucky State Pharmaceutical Association, advised that the following delegates had been appointed to convey to the Kentucky State Medical Society greetings of sympathy and interest in all matters pertaining to the welfare of the Society: Dr. Wiley Rogers, Prof. O. C. Dilly, and Mr. J. J. Reynolds.

On motion these gentlemen were made members by invitation.

Prof. O. C. Dilly addressed the Society.

Dr. J. B. Marvin, of Louisville, addressed the Society extemporaneously on the subject of "Acute Lobar Pneumonia; its Etiology and Pathology."

Dr. John A. Lewis, of Georgetown, followed with a paper entitled, "The Treatment of Acute Lobar Pneumonia."

These two papers were then jointly discussed by Drs. William Bailey and John A. Larrabee, of Louisville, the discussion being closed by Dr. Marvin.

The Treasurer read his report, as follows:

Gentlemen of the Kentucky State Medical Society:

I herewith transmit the report of the condition of the treasury of the Kentucky State Medical Society. During the past year circulars have been sent to over two hundred delinquents, urging them to settle back dues to meet ordinary expenses. A

large majority have failed to respond. If half our delinquents would settle we could meet our obligations.

There was not sufficient money collected during the past year to meet our expenses. The second volume of Transactions was published by John P. Morton & Co. at a cost of $651.65, on which we have paid $453.32, leaving a debt of $198.33.

Receipts.

Balance on hand May, 1893,	$8 67
Collections at Frankfort,	559 00
Collections from delinquents,	124 00
	$691 67

Disbursements.

John P. Morton & Co. on Volume 2, 1893,	$453 32
Same, printing for Society,	25 50
W. P. Walton, printing,	6 75
H. D. Goodwin, stenographer,	71 10
J. R. Marrs, printing,	3 00
Treasurer, stamps,	4 00
Secretary's salary,	100 00
Secretary, stationery, etc.,	28 00
	$691 67

J. B. KINNAIRD,
Treasurer.

Evening Session.

The Society was called to order by the President at 8 P. M.

Dr. O. D. Todd, of Eminence, First Vice-President, took the chair, and President Stewart delivered his Annual Address. He selected for his subject "The Education, Training, and Medical Treatment of the Feeble-minded."

The Hon. G. G. Gilbert, of Shelbyville, delivered a popular address, entitled, "We are Approaching the Truth."

On motion the Society adjourned until Thursday, 9 A. M.

At the close of the evening session a reception was tendered the members of the Society by the Shelby County Hop Club at the Layson Hall.

SECOND DAY—*Morning Session.*

The Society met at 9 A. M., and was called to order by the President.

Under the head of "Miscellaneous Business" Dr. T. H. Stucky, of Louisville, asked for information: Are the reports of this Society, its minutes and discussions, as taken down by the stenographer, allowed to be published in any journal except the journal which publishes our proceedings annually?

Dr. Bailey: The stenographer has never made abstracts of the proceedings of this Society. The matter belongs to the Society, and when presented to the Secretary we incorporate or publish it in any medical journal that may desire it. I will say, however, that the American Practitioner and News for four or five years past has paid half of the expenses of the stenographer, and has been publishing the reports of the proceedings almost exclusively.

Dr. Stucky: There is an agreement then between this journal and the Society which entitles it to all the papers and discussions, and a member has no control over his paper?

Dr. Bailey: The paper belongs to the Society, but any member can publish it in any journal he desires after the American Practitioner and News and the Society are through with it. A member need not publish his paper in the American Practitioner and News if he does not desire it. It is only the discussions that this journal lays claim to. If the stenographer desires to make abstracts of the papers and copies of the proceedings for other journals, he can do so.

Dr. Stucky offered the following resolution, which was unanimously adopted:

Resolved, That we commend the action of the Kentucky Pharmaceutical Association in bringing the National Formulary before the Kentucky State Medical Society, and heartily indorse the reform intended in the use of preparations of known composition instead of proprietary medicines.

Dr. J. N. McCormack, Bowling Green: We have present at this meeting a physician, who is a resident of this town, and who is probably now the oldest practitioner in Kentucky, he having graduated from the University of Virginia in 1830. Thirty years ago he was President of this Society, and elected at the meeting which was held here. When the recent law went into operation this gentleman applied for a certificate, and sent his fee to the State Board of Health, which was returned to him with the statement that it was a sufficient honor to the profession to have him a member of it without requiring of him a fee. I refer to Dr. Jerman Baker, of Shelbyville. I move that Dr. Baker be elected for life an honorary member of this Society, and that he be invited to attend its future meetings and occupy a seat on the platform with the President of the Society.

Seconded and carried.

Dr. J. N. McCormack, chairman of the committee to report on a plan for organizing a medical society in each county of the State auxiliary to the State Society, read the report.

On motion, at the suggestion of the reader, a committee of three was appointed to consider and report upon the features of this report at next meeting. The committee consists of Drs. Carpenter, Shirley, and Bailey.

Dr. Thomas Hunt Stucky, of Louisville, read a paper entitled "Colonic Dyspepsia." The paper was discussed by Dr. John A. Larrabee, of Louisville, the discussion being closed by the author.

Dr. J. H. Kellogg, of Battle Creek, Mich., read a paper "by invitation," entitled "A New and Precise Method of Investigating Functional Disorders of the Digestion, Based upon a Study of more than Thirty-three Hundred Stomach Fluids." No discussion.

On motion the Society adjourned until 8 P. M.

Evening Session.

The Society reassembled at 8 P. M., with the President in the chair.

Dr. J. N. McCormack, of Bowling Green, read a paper entitled "Obstacles to be Met in Elevating the Standard of the Medical Profession."

Dr. T. B. Greenley, of Orell, followed with a paper entitled "How Long, under Certain Conditions, Can the Longevity of Man be Maintained?" These papers were not discussed.

Dr. I. N. Bloom, of Louisville, offered the following resolution, which was adopted:

Resolved, That the Kentucky State Medical Society heartily indorses the laws regulating the Practice of Medicine as they now exist in this State, and further that it recognizes the unselfish labor and constant devotion of Dr. J. N. McCormack in securing the passage of the same, and the efforts of the State Board of Health in putting them into execution.

On motion the Society adjourned until Friday morning, 9 o'clock.

THIRD DAY—*Morning Session.*

The Society was called to order by the President at 9 A. M.

The Permanent Secretary read the report of the Committee on Nominations, as follows:

President—Dr. J. B. Marvin, Louisville.
First Vice-President—Dr. C. W. Aitken, Flemingsburg.
Second Vice-President—Dr. John N. Baughman, Flat Lick.
Permanent Secretary—Dr. Steele Bailey, Stanford.
Treasurer—Dr. J. B. Kinnaird, Lancaster.
Librarian—Dr. Frank Boyd, Paducah.
Board of Censors—Drs. W. W. Richmond, Clinton; W. R. Kirk, Louisville, and C. D. Mansfield, Stanton.
Place of Meeting—Harrodsburg.

On motion the report of the Committee was adopted.

Upon motion of Dr. McCormack the physicians of Harrodsburg and Mercer County were requested to select a committee of arrangements for the next meeting.

The Committee on Publication was announced by the President, as follows: Drs. H. A. Cottell, W. Carroll Chapman, M. F. Coomes, and T. C. Evans. Committee on Special Discussions: Drs. W. H. Wathen, H. M. Skillman, and J. N. McCormack.

Dr. McCormack then introduced Dr. Jerman Baker to the Society, who made a few timely remarks.

Dr. McCormack: I move that the Secretary of this Society be instructed, as early as practicable, by circular letter or otherwise, as he may deem best, to proceed to organize the medical profession of Kentucky by the creation of medical societies in the various counties of this Commonwealth; that he be instructed to open correspondence with the profession at once, using the influence and prestige of this Society, and that some plan be devised by which, in becoming members of the county societies, the physicians will also become members of the State Society. The idea of the State Society is to work to that end. We want to secure, if possible, such a comprehensive organization of the profession of the State as will embrace every reputable physician in it.

Seconded and carried.

Dr. C. H. Todd offered the following, which was seconded by Dr. L. S. McMurtry:

Resolved, That Section 2, Article IV, of the Constitution, now revoked by resolution as recorded on page 10, Vol. 1, of the Transactions, New Series, be restored to read as follows:

Each officer shall be elected after recommendation by the Nominating Committee, which committee shall be appointed by the President, and shall consist of one member from each county represented, except Jefferson County, which shall have four members on said committee. The election shall take place at the annual meeting of the Society, on the third day of the

session during the morning business hour, and each officer shall serve one year or until the election of his successor.

Dr. William Bailey, of Louisville, was appointed by the Chair to escort the newly-elected President to the platform.

Dr. Marvin was then introduced, and on rising to speak was received with great applause. He said:

My knees are not striking together, my gait is not staggering, and I am not too full for utterance, but I shall not afflict you with a speech. I would be as cold as a brick if I did not appreciate this honor. Any medical man might be proud to be selected as the leader in his community, his city, or in his State. You might have selected an older man, a bigger man, and a handsomer man, but you could not have selected one who would appreciate the honor more highly than I do.

Gentlemen, we have had many bright and shining lights in this chair, but let us not be satisfied. Let us press onward and make the 1895 meeting the best in the history of the Society. When I am in the chair I shall certainly try to give the practitioners in the country districts and towns the front seats. You shall have choice places at the '95 meeting.

As we are on the eve of our adjournment, and as we shall soon be widely scattered for another twelve months, let me tender each and every one of you my wishes for a very happy and a most prosperous year.

Dr. William Bailey, of Louisville, presented resolutions of thanks to the profession and people of Shelbyville for the generous hospitality enjoyed at this session. Unanimously adopted.

Dr. L. S. McMurtry, of Louisville, offered the following:

Resolved, That the Kentucky State Medical Society in annual convention assembled hereby tenders its thanks to His Excellency, Hon. John Young Brown, Governor of this Commonwealth, for his able and prompt decisions in support of the medical laws which have rid our State of quackery, and thereby promoted the welfare of the people and advanced the position of scientific medicine.

Adopted.

The following was offered by Dr. Stewart.

WHEREAS, Owing to lax requirements, many students are being admitted to our medical schools in this and other States who are so deficient in education that they can not profit by the instruction given, and

WHEREAS, Our own and other schools are making an earnest effort to meet this difficulty, a work in which they need the cordial support of the body of the profession; therefore be it

Resolved, That we urge the importance of this reform upon the schools and the profession, and to this end ask the State Board of Health (if within its authority) to provide such requirements in the near future as will permit only this class to enter upon the practice of medicine in this State, and that preceptors exert their influence toward bringing about this reform.

Seconded and carried.

Dr. McCormack moved that a copy of the resolution be sent to each medical school in the State, and to the State Board of Health.

The following papers were read by title and referred to the Committee on Publication:

"Appendicitis, its Varieties and Pathology." By Dr. F. Dunlap, Danville.

"Treatment of Inoperable Sarcoma, with the Toxic Products of Erysipelas." By Dr. W. B. Coley, New York City.

"Dysentery, its Etiology, Pathology, and Treatment." By Dr. J. Edwin Caldwell, Perryville.

"Cystic Tumors of the Ovary and Broad Ligament." By Wm. H. Wathen, Louisville.

"The First Assistant in Abdominal Surgery." By Dr. Wm. R. Kirk, Louisville.

"Adenoid Growths in the Vault of the Pharynx." By Dr. H. H. Roberts, Paris.

"What is the Most Frequent Location of Cervical Lacerations when Exceeding the First Degree?" By Dr. George E. Davis, Salvisa.

"Anesthesia for Examination of the Rectum, Sigmoid Flexure, and Lower Colon." By Dr. W. O. Green, Louisville.

"Relations of the Diseases of the Air-Passages to the Eye and other Organs." By Dr. J. G. Carpenter, Stanford.

"Report on the Naso-Pharynx." By Dr. George E. Davis, Salvisa.

"Abuses of Proprietary Remedies." By. Dr. H. H. Roberts, Paris.

"An Obituary of Matthew T. Scott, M. D." By Dr. Lyman Beecher Todd, Lexington.

There being no further business to come before the Society, either of a miscellaneous or scientific character, the Society, on motion, adjourned to meet in Harrodsburg, 1895, at a date to be announced by the Committee of Arrangements.

STEELE BAILEY, M. D.,
Permanent Secretary.

ROSTER.

The italicized names are those of members elected in 1894.

Adamson, H. K., Maysville.
Aitken, C. W., Flemingsburg.
Alcorn, Edward, Hustonville.
Anderson, Turner, Louisville.
Atkins, Henry S., Russell Cave.
Allen, S. S., Lexington.
Alexander, S. C., Owingsville.
Atkins, W. L., Lexington.
Alexander, John B., Mason.
Allan, B. A., Louisville.
Austin, Curtis A., Flagfort.
Albright, Granv. H., Barboursville.
Beeler, Geo. W., Clinton.
Brown, H., Hustonville.
Brown, W. A., Parksville.
Brown, John Young, Lakeland.
Brooks, John G., Paducah.
Bloom, I. N., Louisville.
Bailey, William, Louisville.
Bailey, Steele, Stanford.
Baker, J. M., Shelbyville.
Butt, A. L., Franklin.
Bullock, T. S., Louisville.
Blanford, C. T., St. Mary's.
Bogle, John C., Danville.
Barron, David, Lexington.
Betchel, John T., Poole's Mills.
Brice, J. C. S., Poplar Plains.
Blanding, Abraham S., Walnut Hills.
Black, James M., Red House.
Becket, J. R., Powersville.
Bryan, Joseph, Lexington.
Baughman, J. N., Flat Lick.
Bullock, W. O., Lexington.
Boggess, Walter F., Louisville.
Brown, Joseph Thos., Clintonville.
Butler, Thomas L., Louisville.
Bosworth, Lewis N., Lexington.
Bagby, D. M., Walton.
Bodine, J. M., Louisville.
Boyd, Frank, Paducah.
Blaine, A. D., Dry Ridge.
Bowen, D. C., Nolyn.
Blue, W. R., Louisville.
Beard, W. F., Shelbyville.
Birchett, John G., Croppers.
Barbour, Philip F., Louisville.
Buchanan, James B., Campbellsville.
Buckner, W. T., Shelbyville.
Beard, Frank M., Shelbyville.
Bland, T. E., Shelbyville.
Beard, E. T., Todd Point.
Banta, Will P., Louisville.
Cheatham, William, Louisville.
Cartledge, A. M., Louisville.
Clarke, F. H., Lexington.
Coomes, M. F., Louisville.
Cottell, H. A., Louisville.
Cartwright, H. L., Junction City.
Cecil, John G., Louisville.
Coleman, B. L., Lexington.
Carpenter, J. G., Stanford.
Creel, M. P., Central City.
Cowan, Harry J., Danville.
Coleman, W. W., Mt. Washington.
Chenoweth, James S., Louisville.
Chapman, W. Carroll, Louisville.
Coombs, Sam. W., Bowling Green.
Collins, Moses, Lakeland.
Carrick, J. G., Lexington,
Coons, T. C., Chilesburg.
Coffman, W. H., Georgetown.
Cartwright, H. P., Bowling Green.
Cinnamond, M. Miller, Hatton.
Chinn, George W., Frankfort.
Contri, Louis G., Bedford.
Caldwell, R. C., Bloomfield.
Crosby J. A., Shelbyville.
Dunlap, Fayette, Danville.
Dixon, Archibald, Henderson.
Dixon, Archibald, jr., Henderson.
Dabney, S. G., Louisville.

Daugherty, Thos. H., Sadieville.
Davis, George Edwin, Salvisa.
Duerson, Charles B., Mt. Sterling.
Davis, W. M., Louisville.
Doherty, W. B., Louisville.
Dunn, M. C., Henderson.
Dugan, W. C., Louisville.
Dade, Waller H., Frankfort.
Demaree, Owen, Benson Depot.
Davies, Frank, Simpsonville.
Duncan, Charles T., Duncan.
Dalton, J. M., Harrodsburg.
Evans, J. B., Riley.
Eager, Benj. F., Hopkinsville.
Evans, Thomas C., Louisville.
Evans, Silas, Lexington.
Ely, James R., Frankfort.
Ely, William E., Frankfort.
Floyd, William, Mannville.
Foster, John M., Richmond.
Frank, Louis, Louisville.
Falconer, Richard C., Lexington.
Fallis, Robert G., Louisville.
Ferguson, R. V., Haydonville.
Frey, R. Wesley, Trenton.
Fulton, Gavin, Louisville.
Freeman, J. A., Beard.
Greenley, T. B., West Point.
Grant, H. H., Louisville.
Griswold, Alex. V., Louisville.
Griffin, T. H., Henderson.
Green, E. M., jr., Louisville.
Gudgell, Frank P., Owingsville.
Green, Walter O., Louisville.
Green, F. M., Greendale.
Givens, Lamme S., Cynthiana.
Garner, William F., Humphrey.
Goodman, Henry M., Louisville.
Garr, C. R., Flemingsburg.
Griffiths, Geo. W., Louisville.
Grant, J. W., Petersburg.
Griffiths, W. M., Louisville.
Gibson, H. R., Richmond.
Groves, Charles J., Beuchel.
Guest, J. W., Louisville.
Gilbert, R. B., Louisville.
Guthrie, William A., Franklin.
Holloway, J. W., Keene.
Hanna, W. M., Henderson.
Harwood, J. M., Shelbyville.
Hickey, C. W., Flemingsburg.
Hays, T. A., Fairmount.
Hodge, J. A., Henderson.
Hopson, Joseph, St. Matthew's.
Hart, H. C., Winchester.
Herring, Henry C., Lancaster.
Helm, S. L., Spears.
Hume, E. E., Frankfort.
Holloway, Uriah G., Troy.
Henderson, Peyton R., Louisville.
Holsclaw, John R., Zoneton.
Hower, T. J., Cropper.
Hobson, Willis W., Harrod's Creek.
Hays, John Edwin, Louisville.
Harvey, C. W., Louisville.
Herndon, Ben. F., Barboursville.
Holloway, Sam. W., Louisville.
Heuser, Henry, Louisville.
Hertzsch, Della, Louisville.
Huddleston, J. W., Murphysville.
Holmes, B. L., Carrollton.
Harwood, Charles P., Shelbyville.
Horine, G. Z., Graefenberg.
Ingram, Julia C., Louisville.
Irwin, J. W., Louisville.
Irvine, W. E., South Carrollton.
Jamison, W. E., Eminence.
James, Samuel E., Frankfort.
Jenkins, J. O., Newport.
Jackson, A. W., Earlington.
Johnson, Calvin R., Waddy.
Johnson, J. E., Zion.
Joyes, Crittenden, Louisville.
Jessee, J. F., North Pleasureville.
Jessee, Geo. M., North Pleasureville.
Keen, W. C., Albany.
Kenyon, F. P., Middlesborough.
Kincaid, J. W., Catlettsburg.
Kinnaird, J. B., Lancaster.
Kinnaird, Thos. H., Lexington.
Kash, Oliver S., Moorefield.
Kaelin, F., Louisville.
Kirk, W. R., Louisville.
Kelly, C. W., Louisville.

Kennedy, O. A., Richmond.
Kelly, Geo. D., Lexington.
Kelly, J. H., Mayslick.
Kavanaugh, C. W., Lawrenceburg.
Knox, David B., Newton.
Letcher, J. Hughes, Henderson.
Larrabee, J. A., Louisville.
Laurence, Anna F., Louisville.
Leaming, S. E., Stanton.
Luckett, E. H., Owensboro.
Lieber, A. J., Henderson.
Lowry, John C., Troy.
Leathers, Chas. A., Lawrenceburg.
Leak, J. K., New Haven.
Lewis, Harry S., Louisville.
Lewis, John A., Georgetown.
Lewis, C. C., Stamping Ground.
Lillard, G. D., Lawrenceburg.
Lassing, H. C., Union.
Long, John L., Louisville.
Lee, James R., Columbus.
McChord, R. C., Lebanon.
McMurtry, L. S., Louisville.
Marvin, J. B., Louisville.
Mathews, J. M., Louisville.
Morrison, A. M., Goshen.
Mann, Chas. M., Nicholasville.
McCormack, J. N., Bowling Green.
McClure, W. B., Lexington.
McDowell, Harvey, Cynthiana.
Milliken, W. B., Rockfield.
Meredith, Thomas O., Burgin.
McMurray, Thos. J., Lawrenceburg.
Meek, J. M., Morgan.
Marshall, Ewing, Louisville.
Martin, W. M., Kingston.
Mansfield, Cassius D., Stanton.
McDowell, Lucien, Flemingsburg.
Meek, Harrison D., Claysville.
Moss, Virgil U., Rockfield.
Metcalfe, John H., Louisville.
Maddox, J. D., Rockport.
Miles, Abraham M., Harvieland.
McDowell, James L., Central City.
Mathers, Chas. W., Head Quarters.
McNue, Nelson H., Carlisle.
Morris, William E., Southville.
Norment, Henry T., Anthoston.
Nunnelly, Henry C., Ford.
Nelson, W. C., Salvisa.
Nutall, Wm. L., New Castle.
O'Neal, W. S., Lancaster.
Ouchterlony, John A., Louisville.
Oldham, John Y., Lexington.
O'Conner, John W., Elizabethtown.
Prewitt, James V., West Point.
Price, Ancil D., Harrodsburg.
Pusey, H. M., Louisville.
Palmer, E. R., Louisville.
Plummer, H., Harrodsburg.
Pryor, J. W., Lexington.
Purdom, J. F., Louisville.
Poyntz, James M., Richmond.
Price, Joseph L., Sherman.
Pack, John E., Georgetown.
Perkins, George, Somerset.
Parker, J. W. F., Somerset.
Phillips, G. M., Maysville.
Patterson, Thomas L., Lexington.
Phillips, William E., Wyoming.
Pusey, Henry K., Louisville.
Pelle, H. E., Louisville.
Pope, Clarence T., Louisville.
Pitman, H. L., East Bernstadt.
Pope, Curran, Louisville.
Parker, J. H., Corbin.
Pennington, J. R., Louisville.
Pierce, E. L., Louisville.
Peck, D. D., Helena.
Powell, J. N., Corydon.
Pusey, D. C., Brandenburg.
Powell, W. D., Harrodsburg.
Pratt, R. D., Shelbyville.
Phythian, J. L., Newport.
Prewitt, Nelson V., Winchester.
Powell, Hugh Baker, Corydon.
Pound, T. P. D., Wilsonville.
Powers, James G., Fairfield.
Perrin, J., Simpsonville.
Quinn, William A., Henderson.
Reynolds, Dudley S., Louisville.
Roberts, W. O., Louisville.
Richmond, W. W., Clinton.
Riley, F. F., Anchorage.

Rodman, W. E., Hodgenville.
Rodman, W. L., Louisville.
Ray, J. Morrison, Louisville.
Robertson, D. D., Calhoun.
Ross, W. P., Madisonville.
Ramsey, R. T., London.
Robertson, James Owen, Bridgeport.
Roberts, Harvey H., Paris.
Reddish, George M., Somerset.
Reynolds, O. H., Bagdad.
Robertson, A. S., Sherburne.
Ritter, H. B., Louisville.
Reddick, James T., Paducah.
Robertson, J. D., Paducah.
Rousey, J. H., Louisville.
Ray, W. R., Chestnut Grove.
Stuart, Robert, Zion.
Swope, Samuel D., Marion.
Sleet, Wm. E., Midway.
Shirley, Isaac A., Winchester.
Shirley, J. A., Grassy Lick.
Scott, Preston B., Louisville.
Stucky, T. Hunt, Louisville.
Stucky, J. A., Lexington.
Stewart, J. Q. A., Farmdale.
Seargent, Andrew, Hopkinsville.
Skillman, H. M., Lexington.
Scribner, E. T., Louisville.
Stone, B. W., Hopkinsville.
Skinner, C., Louisville.
Smith, A. Wilkes, Richmond.
Smith, Jerome, Hodgenville.
Scott, Lewis M., Frankfort.
Simmons, Nathan R., Kirklevington.
Stone, John N., Berry.
Steadman, Sam. M., Lexington.
Simpson, Geo. T., Louisville.
Schachner, Aug., Louisville.
Smith, D. T., Louisville.
Strickler, F. P., Elizabethtown.
Samuel, F. W., Louisville.
Simons, A. A., Cloverport.
Selby, J. T., Elizabethtown.
Smith, E. S., Hodgenville.
Sheley, P. A., Louisville.
Shuck, J. H., Louisville.
Stewart, John Pugh, Farmdale.
Speer, J. H., Brownsboro.
Speer, James W., Alton.
Stewart, Alex. H., Prestonburg.
Smith, Egbert S., Paradise.
Schoolfield, C. B., Dayton.
Swain, Enos S., Smithfield.
Todd, Chas. H., Owensboro.
Todd, Orrin D., Eminence.
Thompson, Pinckney, Henderson.
Townsend, T. J., Shocoh.
Todd, L. Beecher, Lexington.
Taylor, T. J., Richmond.
Tuley, Henry E., Louisville.
Taylor, Philip Richard, Louisville.
Townsend, Oliver L., Orr.
Thornton, G. G., Gravel Switch.
Trapp, Chas. W., Lexington.
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Underwood, W. L., Croppers.
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Wilson, F. C., Louisville.
Webb, W. C., Wilmore.
Willis, R. L., Lexington.
Willis, Sam. W., Pine Grove.
Willis, T. A., Finchville.
Wiley, E. M., Harrodsburg.
Woody, Sam. E., Louisville.
Woods, R. T., Paris.
Wesley, J. T., Middleburg.
Wesley, Isaiah S., Middleburg.
Williams, Urbane V., Frankfort.
Wallingford, Alex. M., Mt. Carmel.
Warner, Geo. M., Louisville.
Weidner, C., Louisville.
Wesley, Cyrus, Newell.
Witherspoon, J. T., Lawrenceburg.
Williams, John M., Louisville.
Wells, Joseph Ezra, Mt. Olivet.
Witherspoon, A. H., Lawrenceburg.
Yager, F. J., Campbellsburg.
Young, F. O., Lexington.
Yandell, David W., Louisville.
Yeager, W. H., Louisville.

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